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The Role of Social Class in the Formation of Voting Intentions and Product Choices: A Social Cognitive Perspective

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By

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Preface

This cumulative dissertation is based on the three manuscripts listed below. The first two manuscripts have been published in peer-reviewed journals and the third manuscript has been submitted for publication. Manuscript 2 was originally submitted as a Registered Report as part of the GLES Open Science Challenge 2021.

Unkelbach, F., Brütting, T., Schilling, N., & Wänke, M. (2023). Looking competent does not appeal to all voters equally: The role of social class and politicians' facial appearance for voting likelihood. *Personality and Social Psychology Bulletin*, *0*(0). https://doi.org/10.1177/01461672231181465

Unkelbach, F., John, M., & Vogel, V. (2023). Jumping on the bandwagon: The role of voters' social class in poll effects in the context of the 2021 German federal election. *Politische Vierteljahresschrift*, *64*(1), 51–78. https://doi.org/10.1007/s11615-022-00417-3

Unkelbach, F., Kehder, P., & Wänke, M. (2023). Do consumers of all social classes prefer best sellers? Three pre-registered replication studies of Na et al. (2016). Manuscript submitted for publication.

One additional manuscript that is not part of this dissertation but adds to its insights is currently in preparation. This manuscript is listed below:

Batruch, A., Unkelbach, F., Prisacaru, N., & Wänke, M. (2023). Social class and interdependent self-construal: Two large-scale studies from the U.S. and the German context. Manuscript in preparation.

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1   Introduction and Overview

In recent years, political actors around the world have become increasingly aware of how large disparities in individuals' socio-economic living conditions can threaten the functioning of modern societies (see e.g., Department of Economic and Social Affairs of the United Nations, 2020; OECD Centre for Opportunity and Equality, 2017). For example, the United Nations declared socio-economic inequality to be one of the major challenges of the 21st century (Department of Economic and Social Affairs of the United Nations, 2016). Such disparities in social class have far-reaching implications for almost every aspect of individuals' lives (e.g., Kraus et al., 2012), including their mental and physical well-being (Assari, 2017; Fein, 1995; McLeod et al., 2012; Singh-Manoux et al., 2005), and even life expectancy (Stringhini et al., 2017).

While the role of social class in life outcomes has been studied in other disciplines for centuries (e.g., Bourdieu, 1979/1984; Marx & Engels, 1848/2017; Weber, 1904-05/1958), psychologists have long overlooked its relevance for individuals' psychological functioning (Kraus & Stephens, 2012). In the past two decades there has been a radical shift, beginning with the development of psychological models of social class that emphasize the effects of social class on people's thoughts, feelings, and behaviors (Kraus et al., 2012; Kraus & Stephens, 2012). Within these models, social class is conceptualized as including both *objective* socio-economic status (SES), which refers to access to material resources, and *subjective* social status (SSS), which refers to a person's perception of their relative standing in the societal hierarchy (Kraus et al., 2012; Kraus et al., 2013).

One fundamental premise of social cognitive models of social class is that making repeated experiences in certain social class contexts shapes individuals' psychological makeup (see e.g., Kraus et al., 2012). Recent approaches conceptualized these class-based differences in psychological tendencies referring to the two broad dimensions of personality and social judgment – agency and communion (Bakan, 1966; see also Abele & Wojciszke, 2007; Wiggins, 1991). While higher-class individuals have been assumed to show a larger tendency to be oriented towards promoting their self (i.e., agentic), lower-class individuals have been assumed to show a larger tendency to be oriented towards others and their social environment (i.e., communal) (e.g., Kraus et al., 2012; Rucker et al., 2018). In line with these assumptions, a large number of studies found fundamental differences in how individuals from different social classes perceive and judge their self and others, perceive emotions, build relationships with others, behave in social situations, and make decisions (for overviews, see Fiske & Markus, 2012; Kraus et al., 2012; Manstead, 2018).

Based on three manuscripts with a focus on the political and the consumer context, this dissertation provides comprehensive new insights into the role of social class in individuals' decision-making. *First*, it sheds some light on class-based differences in the effects of politicians' perceived competence on the likelihood of voting for a particular candidate. Initial evidence from the U.S. has suggested that higher-class individuals value competence in politicians more than lower-class individuals (e.g., Callaghan et al., 2022). Manuscript 1 extends this research by examining the role of social class in facial appearance effects on voting intentions in the German context. *Second*, this dissertation provides empirical tests of the role of social class in majority influence. Prior research based on U.S. samples has shown that people from lower social classes are more susceptible to the

preferences of others when choosing products than people from higher social classes (Na et al., 2016; Stephens et al., 2007). To examine the generalizability of these social class-based differences in conformity, Manuscript 2 investigated them in the context of poll effects on voting intentions. Manuscript 3 completes the picture by examining the replicability of findings from previous research on class-based differences in susceptibility to majority influence in the context of product choice, using German and U.S. samples. All manuscripts addressed methodological limitations of previous research. Overall, the present research contributes to a deeper understanding of the generalizability and potential boundary conditions of social cognitive class-based differences. In the following, I provide brief summaries of the manuscripts and an overview of the structure of this dissertation.

Manuscript 1 had two main goals. First, we[1] aimed to clarify whether voters with higher SES value politicians' perceived competence, a sub-facet of agency, relatively more than voters with lower SES when forming voting intentions. Second, we aimed to shed light on competence as a schematic trait among higher-class voters. To achieve these goals, we used correlational survey data from a large-scale representative German sample and conducted three online experimental studies which manipulated politicians' perceived competence through facial appearance. The results extend previous research by demonstrating that individuals with higher SES place greater weight on politicians' perceived competence in the German context, even when it is perceived only from politicians' faces. Additionally, this research provides evidence for self-perceived competence as an underlying psychological mechanism. In conclusion, Manuscript 1 highlights the importance of class-based differences in individuals' perspective on themselves, their evaluations of politicians and thus the formation of voting intentions.

Manuscript 2 had the goal to identify potential social class-based differences in voters' tendency to conform to a perceived majority in their voting intentions. Notably, conformity is typically associated with communion (see Gebauer et al., 2013). We investigated whether social class moderates so-called political bandwagon effects in the 2021 German federal election. These effects refer to the tendency to adjust one's voting intention to support a party perceived as the "winner" in pre-election poll results (see e.g., Schmitt-Beck, 2015). For this purpose, we combined data from the German Longitudinal Election Study (GLES) Rolling Cross-Section 2021 (RCS; GLES, 2022), which consists of representative samples assessed daily for 55 days before the 2021 German federal election, with the results of published pre-election polls. The findings indicated limited poll effects and did not support the assumption that the tendency to follow a perceived majority preference differs across social classes. Thus, they raise questions about the nature of bandwagon effects in multiparty systems and cast doubt on the relationship between social class and this aspect of communion.

Manuscript 3 further examined the replicability and cross-cultural generalizability of the relationship between social class and the tendency to follow a majority in the German and the U.S. context, with a focus on purchase decisions. Specifically, we conducted three replication studies of Na et al.'s (2016) original research. The authors had shown that individuals from lower social class backgrounds change their product choices more frequently

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[1] In the following, "we" refers to all authors who contributed to the respective manuscript.

to conform to the perceived majority product choice. Across three studies, two conducted in Germany and one in the U.S., our results suggest that the relationship between social class and conformity in product choices is less robust than previously assumed. Additionally, we investigated whether social class is related to a chronic interdependent self-construal. This perspective on the self is related to communion (Abele et al., 2016; Abele & Wojciszke, 2007) and was proposed as an underlying mechanism of the social class effects found by Na et al. (2016). However, we did not find the assumed negative relationship between social class and an interdependent self-construal. In summary, these findings raise important concerns about the generalizability of previously found social class-based differences in communion.

After this introduction, the present dissertation is structured as follows: Section 2 introduces the conceptualization of social class in recent social psychological research and the assumption of fundamental class-based differences in agency and communion. Additionally, it provides a brief overview of psychological effects of social class. Section 3 presents relevant findings on the role of social class in the formation of voting intentions and product choices, followed by a description of the limitations of previous research in Section 4. Section 5 includes summaries of the three manuscripts underlying this dissertation and explains how they address the limitations of prior research. Finally, Section 6 provides a comprehensive discussion of the implications of the present findings, their limitations, and directions for future research on the role of social class in the political and consumer contexts.

2   Social Cognitive Perspective on Social Class

2.1   Conceptualization of Social Class in Social Psychology

Only in the last decades has social class moved into the focus of social psychologists as an important predictor of central psychological processes (see e.g., Kraus & Stephens, 2012). Building on earlier social scientific accounts that recognized shared characteristics of individuals with similar social class backgrounds (e.g., Bourdieu, 1979/1984; Kohn, 1969), Kraus et al. (2012) proposed a seminal social cognitive framework of social class to explain how social class shapes individuals' thoughts, feelings, and behaviors. This framework defines social class as an important social context in which individuals grow up and live (see also Stephens et al., 2014) and argues that social class contexts are characterized by both objective and subjective components of social class (e.g., Kraus & Stephens, 2012).

Objective components of social class particularly refer to individuals' level of access to material resources or, in other words, to the question of how much one possesses. These are typically measured via SES, using one or several indicators such as level of educational attainment, household income level, and occupational prestige (Kraus & Stephens, 2012; Oakes & Rossi, 2003).

Subjective components of social class are often operationalized as SSS, which refers to an individual's chronic perception of their position in the societal hierarchy relative to others (Kraus & Stephens, 2012; Kraus et al., 2013). In other words, SSS describes how much one believes to possess compared to others. Thus, it includes an assessment of one's material resources but also, going beyond SES, social comparisons on these typical indicators of SES (see Tan et al., 2020). SSS has additionally been found to reflect psychological variables such as the evaluation of the personal present and future economic circumstances (Singh-Manoux et al., 2003, see also Tan et al., 2020). A widely used measure for SSS is the MacArthur Scale

(Adler et al., 2000), which assesses how individuals rank their standing in society on a ladder with ten rungs representing societal ranks regarding income, educational attainment, and occupational prestige.

Both objective SES and SSS shape and systematically organize the social contexts in which individuals live (e.g., Kraus et al., 2012). However, they are conceptualized as distinct components of social class, as reflected in merely a moderate association between the two constructs (Tan et al., 2020: meta-analytic $r = .32$). The effects of SSS can go above and beyond the effects of SES, as is the case for health outcomes (Adler et al., 2000; Singh-Manoux et al., 2005) or even point into the opposite direction, as is the case for system justification (Li et al., 2020). In order to adequately account for the complexity of the construct, I examine the role of both components of social class in this dissertation.

2.2   Class-Based Differences in the 'Big Two'

A central premise of social cognitive approaches to social class is that being socialized and living in different social class contexts promotes the development of divergent psychological orientations, which are shared by individuals within a social class (Kraus et al., 2012; Kraus & Stephens, 2012). As higher social class contexts are characterized by abundant resources, more stability, freedom, and a high perceived societal rank, individuals making repeated experiences in these contexts tend to be more oriented *towards their self*, including own goals and internal states (e.g., Carey & Markus, 2017; Kraus et al., 2012; Kraus & Stephens, 2012). In contrast, individuals making repeated experiences in lower class-contexts, which are characterized by limited resources, high levels of constraints, few opportunities to make free choices, as well as a low perceived standing in society, tend to be more oriented *towards their social relationships and external environment* (Carey & Markus, 2017; Kraus et al., 2012; Kraus & Stephens, 2012).

Recent accounts have attempted to systematize these broad, divergent psychological tendencies among higher- compared to lower-class individuals by referring to the "Big Two" dimensions of personality and social judgments – agency and communion[2] (Abele & Wojciszke, 2007; Bakan, 1966). More concretely, individuals from higher social classes are assumed to be more agentic, whereas individuals from lower social classes are assumed to be more communal (Rucker et al., 2018). Within the Big Two model, agency is broadly defined as a general tendency to promote the self ("getting ahead", Hogan, 1982) and to strive to distinguish oneself from others (Abele et al., 2016; Abele & Wojciszke, 2007, 2014; Gebauer et al., 2013). Importantly, agency comprises the sub-facets of competence, referring to one's abilities, and assertiveness, emphasizing motivational aspects of pursuing one's goals (Abele et al., 2016). In contrast, communion is defined as a general tendency to promote one's relationships with others ("getting along", Hogan, 1982) and reflects one's perspective on the self in relation to others and striving for assimilation with others. Warmth and morality have

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[2] Other theoretical accounts have used different terms referring to similar underlying constructs to describe psychological tendencies related to social class, for example solipsism and contextualism (Kraus et al., 2012) or self- and other-orientation (Gobel & Miyamoto, 2024). In this dissertation, I draw on the concepts of agency and communion as they not only constitute broad, comprehensive dimensions of self- and other-perceptions (Abele et al, 2016), but also provide a useful framework for studying how individuals make choices (Kurt & Frimer, 2015).

been identified as sub-facets of this dimension (Abele et al., 2016). Notably, recent approaches argue that agency and communion constitute separate orthogonal dimensions, suggesting that it is generally possible for individuals to be both highly agentic *and* highly communal (Abele & Wojciszke, 2007; Rucker et al., 2018).

2.3   Social Cognitive Effects of Social Class: A Brief Overview

Over the past two decades, numerous empirical studies have been conducted based on the assumption of class-based differences in broad psychological tendencies. In the following, I present a brief overview of influential findings in social psychological research on social class, including its effects on self-perception, the perception of and the interaction with others, and decision-making.

First and foremost, prior research has established class-based differences in the perspective on the self. Specifically, living in higher-class contexts has been associated with a higher self-esteem (e.g., Kan et al., 2014) and a higher perceived control over life outcomes (John et al., 2023; Johnson & Krueger, 2006; Kraus et al., 2009; Lachman & Weaver, 1998). Using concepts from cultural psychology, further research showed that higher-class individuals (as measured via parental education) are more likely than lower-class individuals to develop an *independent* self-construal (e.g., Fernández, 2005). This type of construal of the self refers to viewing the self as a unique, separate entity (e.g., Markus & Kitayama, 1991; Singelis, 1994) and is associated with the broad dimension of agency (e.g., Abele et al., 2016). Emphasizing the existence of a positive relationship between social class and self-perceived agency, further studies suggest that higher-class individuals tend to perceive themselves as more competent than lower-class individuals do (Abele, 2003; Belmi et al., 2020; Oldmeadow & Fiske, 2010).

Living in lower-class contexts, on the other hand, has been associated with a tendency to explain life outcomes by referring to contextual influences outside one's personal control (Kraus et al., 2009). Additionally, there is some research showing that lower-class individuals are more likely than higher-class individuals to develop an *interdependent* self-construal (Fernández et al. 2005; Grossmann & Varnum, 2011). This type of construal of the self refers to viewing the self as embedded in social relationships (e.g., Markus & Kitayama, 1991; Singelis, 1994) and is associated with the broad dimension of communion (e.g., Abele et al., 2016). However, the empirical evidence for class-based differences in interdependent self-construal is mixed. Some research has found no significant association (Stephens et al., 2007), while other research has found support only for certain measures of interdependent self-construal and not for others (Na et al., 2010). In summary, there exists conclusive evidence of a positive relationship between social class and self-perceived agency, whereas evidence for the often-assumed negative relationship between social class and self-perceived communion appears to be more limited (see also Boileau, 2022).

Second, prior research has established social class-based differences in social perception and individuals' relationships with others. In line with the assumption of lower-class individuals being more oriented towards others, or communal, than higher-class individuals, they tend to have a higher accuracy when detecting others' emotions (Kraus et al., 2010). Furthermore, it was found that lower-class individuals tend to show more other-oriented emotions, such as compassion, while higher-class individuals tend to show more self-oriented emotions, such as pride (Piff & Moskowitz, 2018). Adding to this line of research, it

could be demonstrated that when perceiving adversities, lower-class individuals tend to focus on their connections with others, while higher-class individuals tend to rely on their personal wealth (Piff et al., 2012). Consistent with this finding, as social class increases, the proportion of people in one's social network who belong to the inner circle decreases (Na et al., 2010). Taken together, these findings on social class-based differences in social perception and relationships support the notion of class-based differences in agency and communion.

Third, effects of social class have been found in the context of decision making. One line of research has demonstrated that the higher perceived uncertainty and lack of stability associated with a lower social class leads to a higher risk aversion, more prosocial decisions, and a greater tendency to prioritize current over future goals (e.g., Amir et al., 2018; for an overview, see Sheehy-Skeffington, 2020). Importantly, there may also be social class-based differences in the meaning attached to the act of decision making (e.g., Snibbe & Markus, 2005; Stephens et al., 2011). While higher-class individuals tend to view choices as a means of establishing their uniqueness and expressing their own preferences, lower-class individuals tend to make choices with the goal to strengthen their relationships with others (Stephens et al., 2011; Stephens et al., 2007; see also Snibbe & Markus, 2005). In line with this assumption, prior research found that lower-class individuals are more likely to make choices that are similar to the choices of others (Stephens et al., 2007) and tend to follow others' choices (Na et al., 2016). Section 3.2 outlines these and related findings in more detail. In summary, these findings suggest that higher-class individuals tend to be more agentic and lower-class individuals tend to be more communal in their decision-making (see Rucker et al., 2018).

Looking at this brief, by no means exhaustive overview of the empirical evidence for social class effects found in social psychological research over the last decades, it seems reasonable to conclude that individuals' social class plays an important role in almost every aspect of their lives and, in particular, in the way they make decisions. Extending the above-mentioned findings, the manuscripts underlying the present dissertation focus on the role of social class in two important decision-making contexts in modern democracies, the political and the consumer context. More concretely, they investigated social class-based differences in a) the importance of politicians' perceived competence (Manuscript 1) and b) the tendency to follow a majority's preference in voting intentions (Manuscript 2) and product choices (Manuscript 3). In the following, I outline relevant prior research in the political and the consumer context and describe its main limitations, before providing a summary of the three manuscripts that form the basis of this dissertation.

3   Selected Effects of Social Class in the Political and Consumer Context

3.1   Social Class and the Importance of Politicians' Perceived Competence

In the political context, an important interpersonal aspect that influences voting decisions is voters' perception of politicians' character traits (Funk, 1999; Kinder et al., 1980; Laustsen & Bor, 2017; Miller et al., 1986). In particular, perceived competence as one sub-facet of agency has been found to increase the likelihood of voting for a candidate (Antonakis & Dalgas, 2009; Todorov et al., 2005). Research on the effects of facial appearance even suggests that merely looking competent is beneficial for a politicians' electoral success

(Antonakis & Dalgas, 2009; Ballew & Todorov, 2007; Olivola & Todorov, 2010a, 2010b; Todorov et al., 2015).

Importantly, initial evidence based on data from the American National Election Study (ANES) suggests that voters with higher SES (measured via educational attainment) value competence in politicians more compared to voters with lower SES (Kinder et al., 1980; Miller et al., 1986). In line with this result, a first experimental study based on verbal descriptions of fictional politicians found that the higher the voters' SES (measured via a composite score based on household income and education), the higher the likelihood of voting for a competent candidate (Callaghan et al., 2022). Furthermore, this research found that a higher social class was associated with greater interpersonal closeness with candidates who appeared more competent. This might be one explanation for the effect and is consistent with the finding that higher-class individuals perceive themselves as more agentic (see e.g., Oldmeadow & Fiske, 2010). However, it should be noted that Callaghan et al. (2022) relied on verbal descriptions of fictitious candidates presented as either high in competence or high in warmth. This approach neglects the fact that voters perceive politicians on both dimensions simultaneously and that politicians can vary in their level of perceived competence.

Taken together, these studies provide initial evidence for a positive relationship between social class and the importance placed on politicians' perceived competence as a sub-facet of agency. One goal of this dissertation is to extend these findings (see Section 5.1, Manuscript 1). A second objective is to shed light on how fundamental class-based differences in agency and communion are manifested in conformity to the preferences of others. The next section presents preliminary evidence from prior studies regarding this relationship.

3.2   Social Class and the Susceptibility to Majority Influence

The fact that individuals are influenced in their decision-making by the perceived preferences of others has long been established in different disciplines. In social psychological research, individuals' tendency to follow a majority viewpoint has often been conceptualized as *conformity* (e.g., Asch, 1956). Similarly, political scientists have used the term *political bandwagon effect* to describe the phenomenon that voters tend to shift their voting intentions to support parties that are perceived as preferred by a majority (Moy & Rinke, 2012; Mutz, 1998; Schmitt-Beck, 1996). Importantly, this type of bandwagon effect is categorized as a poll effect as individuals particularly learn about majority's voting intentions based on the results of pre-election polls (e.g., Schmitt-Beck, 2015). Finally, in the consumer context, Cialdini (1993) coined the term *social proof heuristic* to describe the tendency of consumers to buy products that appear to be popular. Taken together, majority influence plays a pervasive role in individuals' decisions across several contexts.

Importantly, initial evidence suggests that individuals' tendency to follow the decision of a majority depends on their social class. In support of the idea that social class is negatively related with communion, prior research found that individuals from lower social class (as measured via parental educational attainment) were more likely to follow the product choice of another participant compared to individuals from higher social class (Stephens et al., 2007). Similarly, they preferred to let others choose for them as opposed to making their own choices (Stephens et al, 2011) which emphasizes their focus on others' preferences. In contrast, higher-class individuals did not prefer any of these options over the other. Finally, Na et al.

(2016) found that individuals with lower social class (measured via maternal education and SSS) are more likely to change their product choice in order to align with the perceived majority preference than individuals from higher social classes (Na et al., 2016, Study 1). In summary, these findings support the notion that lower-class individuals follow the typical communal motive to assimilate with others whereas higher-class individuals tend to distinguish themselves from others and focus on their own interests through their choices (see e.g., Rucker et al., 2018).

Nevertheless, important questions remain unanswered. First, the role of social class in the susceptibility to majority influence has merely been investigated in the context of product choices and aesthetic preferences. It remains open whether social class could also moderate political bandwagon effects. Second, there is currently insufficient empirical evidence regarding the psychological mechanism underlying these class-based differences. While researchers have postulated that an interdependent self-construal might mediate the relationship between social class and conformity (Na et al., 2016; Stephens et al., 2007), empirical evidence linking social class and this type of self-construal does not appear to be robust (see Section 2.3). Even though Na et al. (2016) showed that the relationship between social class and conformity turns non-significant when controlling for primed interdependent self-construal versus independent self-construal, this approach is not sufficient to establish a comprehensive mediation model (see Pirlott & MacKinnon, 2016).

4   Shortcomings of Prior Research

Having summarized previous research on the role of social class in a) the weight attached to politicians' competence and b) the susceptibility to majority influence, it is important to note that both strands of research have several methodological limitations that may restrict the generalizability of their findings.

First, prior research on the role of social class in the political and the consumer context has often neglected the multifaceted nature of the construct. As outlined above, initial evidence on social class-based differences in the weight attached to politicians' competence using ANES data is based on voters' educational attainment as the sole indicator of SES (Kinder et al., 1980; Miller et al., 1986). Similarly, seminal studies on class-based differences in consumer choices have relied on own or parental educational attainment (for students) as (artificially dichotomized) single indicator of SES and interpreted it as proxy for social class (Snibbe & Markus, 2005; Stephens et al., 2011; Stephens et al., 2007). However, this approach does not take into account that social class contexts are shaped by multiple objective and subjectively perceived resources, which are related but represent distinct aspects linked with different experiences (e.g., Kraus et al., 2012; Kraus & Stephens, 2012; Kraus et al., 2013). In line with this premise, prior research found that SSS predicts outcomes such as policy preferences (Brown-Iannuzzi et al., 2015) or political efficacy (Kraus et al., 2015) over and above indicators of SES. To capture the multifaceted nature of social class conclusively and allow for comparisons of effects across different indicators, all manuscripts of the present dissertation relied on multiple indicators of SES as well as on a measure of SSS.

Second, prior empirical research has been restricted in generalizability due to predominantly focusing on the U.S. context (e.g., Callaghan et al., 2022; Na et al., 2016;

Stephens et al., 2007). Notably, there are several characteristics of this context expected to enhance social class effects. Importantly, the U.S. is characterized by a comparatively high economic inequality (Gini index 2021: 37.4; Solt, 2019) – a factor assumed to increase social class effects due to a higher salience of social disparities (Schneider, 2019). For example, the perception of higher-class individuals as more competent than lower-class individuals increases with higher levels of economic inequality (Connor et al., 2021; Durante et al., 2017). Furthermore, the U.S.A. is considered to be the most individualistic country in the world (Hofstede et al., 2010). Previous research has shown that the positive relationship between social status and individualistic traits is stronger in more individualistic cultures as individuals who endorse values that are important in a culture are more likely to achieve higher social status (Gobel & Miyamoto, 2024; Zhang et al., 2021). Additionally, individuals from higher social classes are more expected to promote cultural ideals (e.g., Miyamoto et al., 2018). With regard to the present research, this suggests that a) the positive relationship between social class and the importance of politicians' competence and b) the negative relationship between social class and conformity might be particularly pronounced in the U.S. context. To develop a better understanding of social class effects and to increase external validity, it appears crucial to shed light on the role of the cultural context as a potential boundary condition. Thus, Manuscripts 1 and 2 examined social class-based differences with German instead of U.S. samples, and Manuscript 3 is based on data from both countries. Germany as standard of comparison appears informative as it is characterized by a smaller level of income inequality (Gini index 2021: 29.7; Solt, 2019) and a less individualistic culture compared to the U.S.A. (Hofstede et al., 2010), two factors that might reduce the social class effects of interest.

Third, particularly prior research on social class-based differences in the susceptibility to social influence predominantly relied on relatively small samples (median sample size per study in Na et al., 2016; Stephens et al., 2011; Stephens et al., 2007: $N = 94$ participants) and tested social class effects with a rather low statistical power. As a low statistical power reduces the chance that a significant finding reflects a true effect and increases the likelihood of inflated estimates for found effects (Button et al., 2013), the replicability of prior findings appears questionable. Furthermore, most of these studies relied on student samples, which are likely to be limited in the variance of participants' social class. To address these limitations and provide robust evidence for the investigated social class effects, all manuscripts of the present dissertation incorporated pre-registered studies based on highly powered samples that were diverse regarding social class. The data was collected in the course of several experimental online studies (Manuscripts 1 and 3) or from representative large-scale surveys (Manuscripts 1 and 2). Additionally, to assess the replicability of previously found social class-based differences in the susceptibility to social influence, Manuscript 3 was based on three replication studies of research by Na et al. (2016).

5   Summary of the Manuscripts

The three manuscripts of this dissertation had the primary goal of assessing the role of social class as a moderator of social factors previously identified as influencing voting intentions (Manuscripts 1 and 2) and product choices (Manuscript 2) (for a schematic overview, see Figure 1). Manuscript 1 tested whether politicians' perceived competence is

valued differently across voters' social class spectrum. Addressing the limitations of prior research in this field, it provides the first investigation of the role of social class as a moderator of facial appearance effects on voting likelihood. This approach allowed for a subtle and nuanced manipulation of perceived competence, thus, contributing to a more comprehensive understanding of the nature of class-based political preferences. Manuscripts 2 and 3 examined whether social class-based differences in the tendency to follow a perceived majority preference generalize to the political context (Manuscript 2) and are replicable in the consumer context (Manuscript 3). Thus, Manuscript 2 represents the first attempt to integrate social cognitive accounts of social class with research on the political bandwagon effect in order to shed new light on both the role of poll effects in modern democracies and the generalizability of social class effects. Manuscript 3 consists of three replication studies of Na et al.'s (2016) research in both the U.S. and German contexts. It provides deeper insights into the generalizability of the role of social class in the tendency to follow others' product choices, interdependent self-construal as underlying mechanism, and the role of the cultural context.

Figure 1
Schematic Overview of the Three Manuscripts Underlying the Present Dissertation
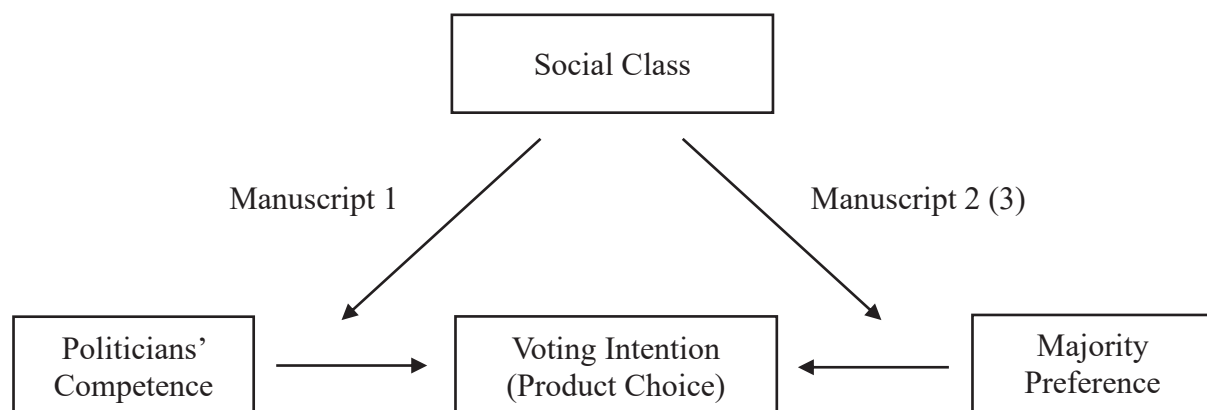
Note. Social class is investigated as a moderator of the effects of politicians' perceived competence respectively the perceived preference of a majority on voting intentions (Manuscripts 1 and 2). Additionally, social class is investigated as moderator of the effect of the perceived preference of a majority on product choices (Manuscript 3).

5.1   Manuscript 1: Social Class and Facial-Appearance Effects

The main goal of Manuscript 1 was to assess social class-based differences in the weight attached to politicians' perceived competence when forming voting intentions. We hypothesized that voters with higher SES would place greater importance on the perceived competence of political candidates than voters with lower SES. Additionally, the manuscript aimed to establish initial evidence for individuals' self-construal concerning competence as an underlying mechanism. We conducted four studies following a mixed methodological approach to provide comprehensive evidence. In all studies, SSS was additionally assessed via the MacArthur Scale (e.g., Adler et al., 2000).

Study 1 aimed to provide the first correlational evidence based on self-report data from a sample representative of the German general population regarding gender, age and educational attainment ($N_1 = 2239$). Participants rated the importance of competence in political candidates. Furthermore, they indicated how competent they perceived themselves. Consistent with the hypothesis, the higher voters' objective SES (computed as a composite score based on z-standardized educational attainment and monthly net household income, see Kraus & Keltner, 2009) the higher was the rated importance of competence in politicians. This relationship remained robust after controlling for the importance ratings of other traits such as assertiveness, warmth, and trustworthiness. Furthermore, we found preliminary evidence for a mediation via voters' self-perceived competence. However, voters' explicitly reported importance ratings might differ from what they actually take into consideration when forming voting intentions. To respond to this shortcoming, Study 2a/b aimed to extend the social class-based differences found in Study 1 to facial appearance effects on voting likelihood.

In Studies 2a/b ($N_{2a\&2b} = 396$), participants were presented with 10 pictures of male politicians' faces unknown to them individually in a randomized order. These pictures were selected based on pretest data to create one set of pictures with low and one with high perceived competence while keeping perceived warmth (as one aspect of communion) at a constant level. After rating each politician's perceived competence and warmth as a manipulation check, participants indicated their likelihood of voting for each candidate. Finally, we assessed participants' objective SES via educational attainment (for students: parental educational attainment) and current household income (for students: family household income). The results of a joint analysis indicated an overall higher likelihood of voting for politicians who are perceived as more competent. Importantly, this effect was moderated via participants' SES, with competence having a greater impact among those with higher SES.

Varying politicians' perceived competence through their facial appearance appears to be a less obtrusive method than manipulations used in prior research (e.g., Callaghan et al., 2022). Yet, measuring perceived candidate traits *before* the voting likelihood might have increased their accessibility and, consequently, their weighting. To prevent this, we altered the question order in Study 3 ($N_3 = 400$). Participants first indicated the voting likelihood for each candidate and subsequently rated perceived warmth and competence. Additionally, we expanded the number of pictures, covering a broader range of perceived competence levels. The results replicated a higher voting likelihood for politicians perceived as more competent. Although the moderation by participants' SES pointed in the same direction as in Studies 2a/b, it did not reach statistical significance ($p = .052$).

Taken together, the results across all four studies suggest that voters' SES moderates the effect of politicians' perceived competence on voting likelihood in the German context. Voters with higher SES appear to value competence in (male) politicians more compared to lower-class voters. Additionally, Manuscript 1 provides initial evidence that this effect might be explained by a higher self-perceived competence among voters with higher SES. Notably, the pattern for SSS diverged from the one for SES. A higher SSS was related to a higher reported importance of competence as well as of several other desirable candidate traits (Study 1). However, we did not find support for a moderation of competence effects on voting likelihood via SSS (Studies 2a/b, 3). A possible explanation for these results is outlined in the

General Discussion. Although not in the focus of our research, we found preliminary evidence that voters' political orientation affects the size of the effects of perceived competence independently of SES.

5.2   Manuscript 2: Social Class and the Political Bandwagon Effect

Manuscript 2 examines whether social class moderates the influence of another element of voters' social environment on voting intentions – the perceived voting intentions of a majority of others as based on published poll results. Drawing on social cognitive accounts of social class (e.g., Kraus et al., 2012; Kraus & Stephens, 2012) and findings from consumer research (Na et al., 2016; Stephens et al., 2007), we predicted that these bandwagon effects on voting intentions would be larger for lower-class compared to higher-class voters. Thus, Manuscript 2 had two main objectives. First, we aimed to assess the generalizability of previously found social class-based differences in the tendency to follow a majority by investigating them in a different context. Second, we attempted to enhance the understanding of the size of the political bandwagon effect and clarify the inconclusive results of prior political science research (Barnfield, 2020) by introducing social class as a potential boundary condition.

We tested our hypothesis in the context of the 2021 German federal election, relying on data from the GLES RCS 2021 (GLES, 2022), a large-scale, cross-sectional survey. The RCS data was collected on a daily basis over the 55 days preceding the election date with the pre-set goal to assess a random sample of 130 respondents per day (total N after pre-registered exclusions = 5291). Importantly, the RCS included measures of respondents' voting intentions, indicators of their SES (educational attainment and current gainful employment status), which we combined into an SES score (e.g., Kraus & Keltner, 2009), the MacArthur Scale (Adler et al., 2000) assessing SSS[3], information on whether they had noticed poll results in the previous week as well as further established predictors of voting intentions serving as control variables (i.e., interest in politics/the current election campaign, party identification, issue orientation, candidate orientation, respondent gender, and age).

To test potential poll effects, we matched data from the RCS with the results of published pre-election polls from the eight leading German polling institutes with a time lag of one day (see Faas et al., 2008; Hoffmann & Klein, 2013). As the data was nested in field days, we computed separate multilevel logistic regressions for each of the six parties which were part of the German national parliament. The interaction term between poll results for the party and voters' SES (and both main effects) were included as predictors of voting intentions for each political party. Merely for the SPD were poll results significantly positively related to voting intentions one day after the polls were published. Supporting the assumption of a bandwagon effect for the SPD, this relationship was larger when respondents had previously perceived polls. However, in contrast to our hypothesis, there were no significant social class-based differences in the size of poll effects for any of the parties. These results remained robust when a) controlling for the afore-mentioned standard predictors of voting intentions, b) using SSS instead of SES as a measure of social class, and c) using a time lag of zero or two days instead of one day.

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[3] SSS was assessed in the RCS postelection survey conducted after the federal election which was completed by only 63% of the respondents from the preelection survey.

In sum, these results do not support the assumption that voters of different social classes vary substantially in their tendency to follow others' political preferences as presented in published poll results. Thus, we did not find evidence that social class serves as a boundary condition of political bandwagon effects. These findings do not only have implications for future research on bandwagon effects in multiparty systems, but also call into question the generalizability of social class-based differences in conformity. Notably, prior studies on the relationship between social class and conformity focused on product choices and were predominantly conducted in the U.S. context (e.g., Na et al., 2016). Thus, the results of Manuscript 2 did not provide conclusive evidence on this matter. They could suggest that either the cultural or the decision-making context, or both, act as boundary conditions for these social class effects. Alternatively, they could point to a lack of replicability of the association altogether.

5.3   Manuscript 3: Social Class and Majority Influence in Product Choices

Given the inconclusive findings on the relationship between social class and conformity in Manuscript 2, Manuscript 3 refocused on consumer choices. Its main goal was to assess the replicability of the previously found negative relationship between social class and conformity in product choice scenarios. By conducting two pre-registered replication studies following the procedure employed by Na et al. (2016) in the German context and one high-powered replication study in the U.S. context (as the original research), Manuscript 3 additionally aimed at shedding light on the potential influence of the cultural context as a boundary condition. Furthermore, in response to shortcomings of the original research, we assessed the role of individuals' chronic interdependent self-construal as an underlying psychological mechanism.

Study 1a ($N_{1a} = 77$) constituted a first attempt to replicate the negative relationship between social class and conformity in product choices with a German sample, following the procedure of Na et al.'s (2016) Study 1. In this online study, participants viewed pictures of 60 product pairs and indicated their preferred option in each pair. Within each pair, products merely differed regarding minor design features. Manipulated feedback on social preferences followed each choice, indicating that either a majority or a minority of other participants had chosen the same product (consistent vs. conflicting feedback). In a second choice phase, participants again indicated their preferred option for each pair, relying on current feelings. Afterwards, SES was measured based on educational attainment and household income, alongside additional indicators such as maternal education. SSS was measured with the MacArthur Scale. The number of changes in choice served as the dependent variable. Results showed that people changed their product choices more often when deviating from a majority preference compared to being in line with a majority preference. However, in contrast to the findings of Na et al., we did not find any support for social class-based differences in conformity.

In Study 1b ($N_{1b} = 203$), we tested the generalizability of social class-based differences in conformity in the German context with a larger sample size and, thus, larger statistical power compared to Study 1a. Again, we followed the experimental design from Na et al.'s (2016) Study 1, but we additionally experimentally manipulated SSS before the product choice task to increase its variance and provide the basis for a causal interpretation of social class effects. Furthermore, Study 1b explored social class-based differences in perceived

similarity with other participants as a potential mediator. As in Study 1a, participants made more changes in choices in conflicting compared to consistent feedback trials, but neither (manipulated) SSS nor (measured) SES moderated this effect. Exploratory analyses revealed a positive relationship between perceived similarity with other participants and conformity. However, we found no social class-based differences in perceived similarity. In sum, Study 1a/b did not find evidence in support of a negative relationship between social class and conformity in product choice in the German context. Importantly, these results could either point to the cultural context as a boundary condition for social class effects on conformity or to an overall limited replicability.

To provide a more complete picture regarding the role of the cultural context, Study 2 ($N_2 = 312$) aimed to replicate the findings of Na et al. (2016) in the same national context as the original research – the U.S. context. We closely followed the experimental design of Na et al.'s (2016) Study 1. Still, we extended the study by assessing interdependent self-construal with the self-construal scale by Singelis (1994) to examine its potential role as a mediator. The manipulation of social preferences produced results consistent with the original study, with participants making more changes in product choice when the majority had ostensibly chosen a different compared to the same product. However, contrary to the results of the original research and different from Study 1a/b, both SSS and SES were positively associated with conformity, suggesting that U.S. participants with higher social class showed more conformity compared to participants with lower social class. Additionally, in contrast to theoretical accounts of social class (e.g., Kraus et al., 2012; Rucker et al., 2018), participants with higher SES indicated a more interdependent self-construal. For SSS, this relationship was non-significant. Additionally, interdependent self-construal was not significantly associated with conformity in product choices. Thus, we did not find evidence for its role as a mediator.

In summary, unlike Na et al. (2016), we found no evidence in three pre-registered replication studies that conformity is more pronounced among individuals from lower social classes compared to those from higher social classes in the context of product choice. Whereas effect sizes were small and non-significant in the German context (Studies 1a/b), a high-powered replication study in the U.S. context (Study 2) revealed a *positive* relationship – thus, in the contrary direction as the original research. Furthermore, the results did not support a mediation through an interdependent self-construal as suggested by Na et al. Consequently, the generalizability of social class-based differences in conformity in product choices is called into question.

5.4   Summary of the Main Findings

The key findings of the three manuscripts of this dissertation can be summarized as follows: The perceived competence of a politician increased the likelihood of voting for that candidate, but importantly, voters with higher SES valued competence relatively more than voters with lower SES (Manuscript 1). With regard to majority influence, the results were less clear (Manuscripts 2 and 3). While the effects of perceived social preferences on voting intentions were small and non-significant for most political parties, conformity emerged consistently in product choices. Importantly, the previously established moderation of majority influence by social class was not found in the context of voting intentions, nor was it

replicated for product choice in German samples. Unexpectedly, higher social class was even associated with greater conformity in product choices in U.S. samples.

Additionally, findings on social class-based differences in self-construal were mixed. On the one hand, individuals from higher social classes reported higher levels of self-perceived competence which appeared to mediate the relationship between social class and the importance of competence in politicians. This result aligns with the assumption that higher-class individuals are more agentic (e.g., Rucker et al., 2018). On the other hand, individuals from lower social classes did not report a higher self-perceived warmth or a more pronounced interdependent self-construal, seemingly contradicting the assumption of them being more communal (Kraus et al., 2012; Rucker et al., 2018) and casting further doubt on the replicability of class-based differences in conformity. In the *General Discussion*, I further discuss these findings on self-construal and their theoretical implications in light of new results from an additional follow-up project based on representative data from both the German and the U.S. context.

In summary, the three manuscripts underlying this dissertation shed light on the role of social class in the formation of voting intentions and product choices. Thereby, they addressed central shortcomings of prior research such as single measures of social class, a narrow focus on the U.S. context and low statistical power to provide a nuanced picture of social class effects. On the one hand, the present findings emphasize the association between social class and competence by showing how it is reflected in voting intentions. On the other hand, they call into question the generalizability and replicability of social class-based differences in aspects related to communion such as conformity and an interdependent self-construal.

6   General Discussion

While detailed discussions of the specific findings can be found in the respective manuscripts, this section shows broader implications for theoretical perspectives on social class, particularly regarding the relationship of social class to agency and communion. Additionally, I reflect on the limitations of the present empirical studies and point to questions that warrant investigation in future research. Finally, I outline practical implications of the present findings, particularly in the context of electoral and marketing campaigns targeting individuals across the social class spectrum.

6.1   Theoretical Implications for Social Cognitive Accounts of Social Class

Social cognitive accounts of social class are based on the central premise that higher-class individuals tend to be more oriented towards the self, respectively agentic, and lower-class individuals tend to be more oriented towards others, respectively communal (Kraus et al., 2012; Rucker et al., 2018). By investigating social class-based differences in how individuals form voting preferences and make product choices, the three manuscripts of this dissertation provide some insights into the relationship between social class and agency, respectively, communion. In the following, I describe how the present findings extend the knowledge on social cognitive effects of social class but also challenge existing theoretical assumptions.

6.1.1   *Social Class and Competence: Evidence for a Deeply Rooted Link*

First of all, the present findings regarding the formation of voting intentions synthesize prior research on facial appearance effects in the political context (e.g., Todorov et al., 2005) and models of the psychological effects of social class (e.g., Kraus et al., 2012; Rucker et al., 2018). As expected, social class as measured via SES moderates facial appearance effects, such that higher-class voters value politicians' perceived competence to a larger degree than lower-class voters. Moreover, initial evidence suggests that higher-class voters perceive themselves as more competent and, importantly, perceive this trait in others in a more nuanced way than lower-class voters. Hence, it appears justified to extend prior models of social class by the notion that competence can act as a schematic trait (for an overview on self-schemata see Markus, 1977) for higher-class voters. As part of their chronically activated knowledge about their self, competence becomes a lens through which these individuals perceive and evaluate others (Fong & Markus, 1982).

Supporting this assumption, preliminary evidence suggests that perceived similarity may explain social class-based differences in the weighting of competence. Within their congruency model of voting behavior, Caprara and Zimbardo (2004) argue that voters tend to prefer politicians who they perceive as more similar to themselves and perceive their claims as more convincing and credible (Caprara et al., 2007). Thus, it is plausible to assume that higher-class voters value competence in politicians more as they perceive themselves as more competent.

Additionally, self-interest might serve as a second psychological mechanism underlying the relationship between social class and the importance of politicians' competence. As high perceived similarity is often interpreted as a signal that a politician shares important values with oneself (see Caprara & Zimbardo, 2004), higher-class voters might infer that politicians with a more competent appearance are more likely to legislate in accordance with their own interests compared to less competent-appearing politicians. Indeed, prior research found initial evidence for self-interest as a further mediator of social class-based differences in the weight placed on politicians' competence (Callaghan et al., 2022). Thus, it can be argued that the particularly pronounced preference for seemingly competent candidates among higher-class voters reflects a strategy to advance their own interests, which is a manifestation of agency itself.

Notably, social class is only positively related to the importance of politicians' competence and not to the importance of other agency-related traits such as assertiveness and dominance. Viewing the voting process as a matter of *conferral of social rank* (see Gobel & Miyamoto, 2024) can provide further insights into the nature of these relationships. Research in evolutionary psychology suggests that human social hierarchies are determined primarily by two strategies for increasing social rank (Cheng, 2020; Cheng et al., 2013; Maner & Case, 2016): On the one hand, social rank can be attained by expressing *dominance*, which refers to a strategy based on intimidation and coercion. On the other hand, individuals can increase their rank through *prestige*, a strategy that involves displaying and sharing knowledge and skills, which leads others to voluntarily subordinate themselves. In modern societies, prestige is the more widely endorsed route to rank conferral and is associated with a greater stability compared to hierarchies based on dominance which tend to produce higher levels of resistance (Cheng, 2020; see also Gobel & Miyamoto, 2024). Importantly, prestige and

dominance are related to the broad dimension of agency. While both strategies reflect a high level of agency, prestige appears to be more closely linked to the sub-facet competence, whereas dominance rather refers to the sub-facet assertiveness (see e.g., Cheng et al., 2013). Based on this reasoning, the present research suggests that particularly voters with higher social class favor politicians who appear to endorse prestige as a strategy for achieving rank. The lack of a significant relationship between social class and the reported importance of politicians' assertiveness may be explained by its association with a dominance-based rank attainment strategy. Partially negative connotations of assertiveness, consistent with a forceful way of attaining rank, may counteract the effects of perceived similarity among higher-class voters. In accordance with this argumentation, looking highly dominant was not advantageous for politicians in the present research.

In sum, these findings offer important implications for widely assumed class-based differences in agency (see Rucker et al., 2018). While they emphasize the strength of the link between social class and competence in line with prior theoretical accounts, they also point at the need to differentiate the sub-facets of agency, competence and assertiveness, when investigating the role of social class in the formation of voting intentions.

Regarding communion, the results of additional analyses in Manuscript 1 suggest that the picture is less clear. Consistent with recent work by Boileau (2022), we found no evidence that lower-class individuals perceive themselves as more communal (as measured via warmth and trustworthiness). Similarly, they did not place a higher value on communion in politicians compared to higher-class individuals. While overarching models predict that lower-class individuals are more communal (Kraus et al., 2012; Rucker et al., 2018) – often formulated as a compensatory mechanism for having lower agency than higher-class individuals – the present findings suggest that this perspective is too simplified. In the following section, I will discuss this aspect in more detail in light of the findings on the role of social class in majority influence.

6.1.2 Social Class and Majority Influence: Rethinking Established Assumptions

While this dissertation establishes that social class acts as a moderator of politicians' perceived competence, the present findings raise doubts about its widely assumed role in majority influence. Contrary to previous research, Manuscripts 2 and 3 found that German individuals from lower social classes did not express a greater tendency to follow perceived majority preferences in either the political or consumer context. The results of prior research could also not be replicated in the U.S. context which rules out the cultural context as an alternative explanation for the null effects found with German samples. While these findings shed light on the role of social influence in individuals' decision-making, they challenge the fundamental assumption of social cognitive theories of social class which suggest a negative relationship between social class and an orientation towards others, i.e. communion (e.g., Kraus et al., 2012; Rucker et al., 2018).

But how can the present findings be explained? To answer this question, it might be necessary to rethink the nature of the relationship between social class and conformity. In prior research (see Na et al., 2016) as well as in the present studies, researchers followed the implicit assumption of an underlying linear relationship, suggesting that conformity increases with decreasing social class. However, the relationship can also take a different form (see Bless & Wänke, 2023). Considering how social class is distributed within societies, an

inverted U-shaped relationship between social class and conformity might also appear plausible. In Germany, merely a minority (7.7%) of individuals is rich (i.e., has an equivalence income above 200% of the population's median equivalence income) or is at risk of poverty (16.7%) (i.e., has an equivalence income below 60% of the population's median equivalence income) (Microcensus, 2022a, 2022b) while individuals in the middle range of incomes represent the majority of the population. Hence, individuals in the middle of the income range, and thus, the social class spectrum, may perceive the preference of a majority of others as more diagnostic due to their larger representation in general society (see also Moschis, 1976). As a consequence, conformity might be highest at medium levels of social class and lower at the ends of the social class spectrum – reflecting an inverted U-shaped relationship. A closely related so-called "middle-status conformity" hypothesis is well established in organizational and management research (e.g., Phillips & Zuckerman, 2001). At the individual level, research supporting this hypothesis found that organizational leaders with middle status make relatively more conventional choices compared to those with lower or higher status (Durand & Kremp, 2016).

An inverted U-shaped relationship between social class and conformity could explain the mixed findings from Manuscript 3 and previous research, given that the studies only covered certain subsections of the social class spectrum. Na et al. (2016) may have found a negative relationship between social class and conformity because their sample only included students from a selective public U.S. college, which is mainly attended by students from relatively wealthy families (Chetty et al., 2020). Therefore, their sample may have selectively covered middle to middle-high levels of social class[4]. In contrast, the samples in Manuscript 3 were likely more diverse in terms of social class as they were not limited to students and were collected via an online crowdsourcing platform (Study 1a and 2). However, there was a lack of participants with extremely low or high social class in all of our studies. Collecting data from individuals with predominantly lower to middle levels of social class may have resulted in the relationship with conformity being nonsignificant (Study 1a/b) or even positive (Study 2). Exploratory tests of a quadratic trend yielded inconsistent results in both the German samples and the U.S. sample in Manuscript 3. However, these should only be interpreted with caution due to the lack of representativeness regarding social class. For future research, it may be fruitful to consider the possibility of a nonlinear relationship between social class and conformity in order to resolve the mixed findings. This requires assessing adequately powered samples that cover the entire social class spectrum within each cultural context of interest.

Finally, although not the primary focus of Manuscript 3, it provides some insights into the commonly assumed negative relationship between social class and an interdependent self-construal, the assumed mediator of class-based differences in conformity. In contrast to the prediction of social cognitive models of social class, SES was significantly *positively* related to an interdependent self-construal. Thereby, the present findings contribute to the mixed empirical evidence on this matter (Fernández et al., 2005; Grossmann & Varnum, 2011; Stephens et al., 2007). In a large-scale replication project together with co-authors (Batruch et al., 2023), using a high-powered German sample ($n = 1,324$) and a representative U.S. sample ($n = 5,771$), we were unable to replicate the negative relationship between social class and an

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[4] In Na et al.'s (2016) Study 1, no further descriptive statistics were reported for measures of SES, except for the number of students classified as working or middle class based on maternal education.

interdependent self-construal again[5]. In both samples, preliminary findings show that correlations between the different measures of an interdependent self-construal and social class indicators were either non-significant or positive.

In conclusion, together with the insignificant relationship between social class and self-perceived communion found in Manuscript 1, these inconsistent findings imply that the nature of the relationship between social class and communion is less robust than expected – and potentially of a fundamentally different nature – than the relationship between social class and agency and, thus, requires further research.

6.2   Limitations and Directions for Future Research

The present dissertation sheds light on how social class shapes the influence of a) politicians' perceived competence and b) social preferences on voting preferences respectively product choices. Yet, the underlying empirical studies have some limitations which point to open questions and fruitful approaches for future research.

First, although all manuscripts captured social class as a multifaceted construct by using two measures of SES, educational attainment and household income (employment status as a proxy for income level in Manuscript 2), as well as one measure of SSS, the current approach still has some drawbacks. With respect to SES, we followed previous research by using both indicators to form a joint score (e.g., Callaghan et al., 2022; Kraus & Keltner, 2009). However, this approach assumes continuity of the variables, which is not guaranteed. Additionally, it neglects that educational attainment and income shape different aspects of social class contexts and may, thus, affect outcomes differently. For example, with respect to political orientation, both indicators showed divergent correlations, with higher income being associated with a more right-wing and higher educational attainment being related with a more left-wing political orientation (Manuscript 1). For this reason, the analyses for all manuscripts were reported separately by indicator type in the respective appendix. Apart from this aspect, a limitation of the present research is the lack of assessment of occupational status as a third indicator of SES. Given that perceived similarity mediates class-based differences in the importance of politicians' competence (as holders of highly prestigious offices) (Manuscript 1), one might expect even stronger associations for occupational status than for other SES indicators. Generally, future research on psychological effects of social class should investigate whether social class effects that were previously demonstrated with only a single indicator of the construct are generalizable to other components of social class contexts (see also Antonoplis, 2023).

Furthermore, the present dissertation highlights the need to clarify the nature of the subjective components of social class. In Manuscript 1, voters with higher SSS rated all facets of agency and communion as more important in politicians than voters with lower SSS. However, in contrast to SES, SSS did not moderate the effect of perceived competence on the likelihood of voting for the respective candidate. One possible explanation for this divergent pattern for SES and SSS could be the artificial inflation of correlations of SSS with other variables measured through self-report due to common method variance (see Tan et al., 2020).

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[5] Interdependent self-construal was assessed via the Singelis scale (1994) in the German sample and via the self-construal scale by Vignoles et al. (2016), need for inclusion Valcke et al. (2020) and collectivism (Yoo et al., 2011) in the U.S. sample.

Thus, it seems fruitful for future research on SSS to follow the approach taken in Manuscript 1 and assess outcomes using both self-report and other types of measures to gain a deeper understanding of the robustness and the processes underlying the effects of SSS.

Second, although the manuscripts underlying this dissertation went beyond previous research in this field by investigating social class effects in the German instead of solely the U.S. context, important questions regarding their cross-cultural generalizability remain open. Prior research suggests that the fundamental class-based differences in agentic and communal self-construal which are expected to underly the investigated social class effects are influenced by two characteristics of the investigated context: the level of economic inequality and cultural norms (see e.g., Gobel & Miyamoto, 2024). Although Germany is characterized by a considerably lower economic inequality compared to the U.S.A., it is also a Western, highly individualistic country (Hofstede et al., 2010). Recent accounts trying to integrate cross-cultural findings on social cognitive effects of social class primarily focused on comparing Western and East Asian countries (Gobel & Miyamoto, 2024; Miyamoto, 2017). However, this categorization might not be sufficiently fine-grained, considering that Manuscript 3 reports initial evidence on differences in the relationship between SES and conformity between the German and the U.S. context. To gain a more nuanced understanding of the generalizability of class-based differences in the formation of political preferences and consumer choices, future research should adopt a broader cross-cultural perspective. Economic inequality, culture, as well as their interplay should be investigated as potential boundary conditions with samples from multiple countries.

Third, the present studies have measured social class cross-sectionally, limiting the ability to model fluctuations in social class over the lifespan and their potential effects on individuals' psychological makeup (see e.g., Kraus & Stephens, 2012). Additionally, the present research did not establish causal evidence for social class effects. Previous research has proposed experimental manipulations of SSS to establish causality (Brown-Iannuzzi et al., 2015; Kraus et al., 2015). However, this approach did not seem sufficient for the present research as I expected stable class-based differences in the self-construal as underlying mechanisms. These differences are likely to develop over a longer period of time when living in certain social class contexts and, therefore, cannot be adequately manipulated experimentally. To address both limitations, future research would benefit from collecting nationally representative longitudinal data with multiple measurement points over several years.

Fourth, this dissertation focuses specifically on the role of social class in individuals' decision making while treating other social categories as control variables. However, personal characteristics such as gender and ethnicity can also serve as status-based contexts (Kraus & Stephens, 2012) and influence fundamental differences in agency and communion (Rucker et al., 2018). For instance, preliminary evidence suggests that gender moderates cultural differences in independent and interdependent self-construal (Cai et al., 2022). Previous accounts have argued that psychological orientations are determined by the most salient form of social hierarchy in a given situation (Rucker et al., 2018). Nevertheless, an intersectional perspective which considers how social class-based differences are intertwined with the effects of categories such as gender and ethnicity may provide a more comprehensive understanding. Future research could put a focus on actively examining intersectional

differences in the formation of voting preferences or product choices. Additionally, research on facial appearance effects should examine the generalizability of the present findings by using a more diverse set of stimuli regarding these characteristics.

6.3   Practical Implications

6.3.1   Competence in Political Campaigns: Targeting Higher-Class Voters

To gain a deeper understanding of the real-life consequences of the present findings for the political context, it is important to consider that in many modern democracies, individuals with higher SES not only represent the majority of members of parliament (e.g., for Germany; see Deutscher Bundestag, 2023), but also tend to exhibit a higher level of political engagement (e.g., Kraus et al., 2015; Manuscript 1). Therefore, the previously found positive effect of politicians' perceived competence on electoral success (Ballew & Todorov, 2007; Todorov, 2005) may be partially explained by higher turnout rates of higher-class voters in actual election scenarios.

For political actors, the present findings suggest that they can benefit from taking into account the social class of their target group of voters when deciding whether to use competence-related claims in political campaigns. Although voters across the social class spectrum generally value competence, competence-related political communication is likely to be more effective for a higher-class target group. Furthermore, it appears worthwhile to consider the role of perceived candidate traits not only from verbal but also non-verbal forms of communication such as portraits on advertising posters (e.g., Olivola & Todorov, 2010a; for prestige, see Witkower et al., 2020). However, addressing lower-class voters appears to be more challenging. Contrary to common compensatory views on agency and communion, lower-class voters do not generally value warmth or trustworthiness more than higher-class voters (Manuscript 1) but merely do so under certain conditions such as a heightened perception of sincerity (Tan & Kraus, 2018).

However, it should be noted that establishing a political context where politicians rely primarily on competence claims may carry the risk of perpetuating unequal levels of political participation. Particularly lower-class voters may feel less addressed, which could further reduce their political engagement. However, further research is needed to confirm this hypothesis. In an unpublished study ($N = 260$) (Pschibilski, 2022), German voters perceived political parties that used slogans expressing high competence (vs. slogans expressing high warmth) as being more likely to target individuals with higher income, education, and occupational prestige. This preliminary finding may reflect individuals' awareness of which social groups are (or are not) addressed by political communication that emphasizes competence.

6.3.2   Context Matters for Majority Influence: Poll Effects and Product Claims

Although no class-based differences in poll effects were found, the present findings contribute to the ongoing public debate on the conditions for publishing pre-election poll results. Based on the present research, the likelihood of public opinion becoming a self-fulfilling prophecy as described in the political bandwagon effect (Schmitt-Beck, 2015) appears to be rather small in multiparty contexts. Fluctuating poll results seem to play a much smaller role for voting intentions than voters' identification with political parties and the evaluation of leading party candidates (potentially influenced by the evaluation of candidate

traits as outlined above). However, it is possible that the picture looks different in two-party systems in which a 'winner' in polls is more clearly defined (Meffert et al., 2011). This may also be the case in situations with high uncertainty in voting preferences, such as time periods with long temporal distance to an election.

Regarding ambiguous product choices, the present findings underscore the importance of majority influence. When consumers lack a clear preference, information about the preference of a majority can sway their decision and even prompt them to reconsider their initial choice. Therefore, the use of popularity claims remains an important tool for marketers to influence consumer preferences (see Cialdini, 1993). However, it is not yet possible to draw profound practical implications regarding the potential benefits of using such claims to target individuals from certain social classes due to the mixed empirical evidence.

Finally, for voters and consumers across the social class spectrum, reflecting on the factors influencing their choices and the validity for their actual political preferences or consumption goals might not only increase perceived control over decisions (Caprara et al., 2004), but also improve (political) information processing and, consequently, decision quality.

6.4   Conclusion

Recent research on social class has demonstrated the encompassing effects of social class on psychological tendencies. Based on social cognitive models of social class, the present dissertation takes a closer look at two specific social class effects in the political and the consumer context, respectively. Social class was investigated as a moderator of a) the effects of politicians' perceived competence on voting intentions and b) the size of majority influence in voting intentions and product choices. The empirical findings of the three underlying manuscripts provide a mixed picture. On the one hand they reveal class-based differences in the preference for competence in politicians which is in line with the well-established positive relationship between social class and agentic traits. On the other hand, they do not support the notion of a negative relationship between social class and conformity. Both in the political and the consumer context this relationship seems to be more limited in generalizability than suggested by prior research. In sum, the present findings imply that rethinking the linear assumption of lower-class individuals being more communal than higher-class individuals is crucial to advance psychological models of social class.

In conclusion, this dissertation addresses the discrepancy between the extent of what social psychology currently understands about fundamental social class-based differences in psychological tendencies and their importance in the face of increasing social disparities worldwide. By narrowing the research gap on how social class shapes the formation of voting intentions and consumption choices, the present research contributes to identifying the mechanisms that shape individuals' living contexts and potentially perpetuate existing social inequalities. Not only does it provide information for political actors on how to improve political communication, but it also constitutes one step in helping voters and consumers to make well-informed, reflected, and thus potentially better, choices – across the social class spectrum.

7 References

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Appendix: Manuscripts

The three manuscripts that underly this dissertation are attached in this Appendix in the following order:

Unkelbach, F., Brütting, T., Schilling, N., & Wänke, M. (2023). Looking competent does not appeal to all voters equally: The role of social class and politicians' facial appearance for voting likelihood. *Personality and Social Psychology Bulletin*, *0*(0). https://doi.org/10.1177/01461672231181465

Unkelbach, F., John, M., & Vogel, V. (2023). Jumping on the bandwagon: The role of voters' social class in poll effects in the context of the 2021 German federal election. *Politische Vierteljahresschrift*, *64*(1), 51–78. https://doi.org/10.1007/s11615-022-00417-3

Unkelbach, F., Kehder, P., & Wänke, M. (2023). Do consumers of all social classes prefer best sellers? Three pre-registered replication studies of Na et al. (2016). Manuscript submitted for publication.

The online supplements for the three manuscripts can be retrieved from:

Manuscript 1: https://doi.org/10.1177/01461672231181465

Manuscript 2: https://doi.org/10.1007/s11615-022-00417-3

Manuscript 3: https://osf.io/fmc29/?view_only=34bc5c1f50df4bb9b46c33eb5b81e50d

TITLE: Looking Competent Does Not Appeal to All Voters Equally: The Role of Social Class and Politicians' Facial Appearance for Voting Likelihood

Abstract

Voters generally value competence in politicians. Four studies, all conducted in Germany, show that this is especially pronounced in people of higher compared to lower social class. The first study, with a representative sample ($N_1 = 2239$), found that the reported importance of competence in politicians increased with increasing socio-economic status (SES). This was mediated by self-perceived competence which was higher in participants of higher SES. In three further studies (two pre-registered, $N_{2a\&2b} = 396$, $N_3 = 400$) participants merely saw pictures of politicians' faces. Perceived competence based on facial appearance increased the likelihood of voting for a politician. Again, this effect was stronger among participants of higher compared to lower SES. This moderation persisted after controlling for participants' political orientation and politicians' perceived warmth and dominance. We discuss implications for future research on the psychological underpinnings of social class as well as appearance effects in the political context.

Political psychology; Appearance-based politics; Big Two; Voting behavior; Self-Concept

Looking Competent Does Not Appeal to All Voters Equally: The Role of Social Class and Politicians' Facial Appearance for Voting Likelihood

Voting decisions are to some extent influenced by candidates´ presumed personality characteristics (Funk, 1999; Kinder et al., 1980; Laustsen & Bor, 2017; Miller et al., 1986; Olivola & Todorov, 2010a; Todorov et al., 2005). Especially perceived competence appears to be relevant for voters. Voters´ ratings of the perceived competence of political candidates were positively correlated with their overall evaluation (Funk, 1999; Miller et al., 1986) and with voting for them (Laustsen & Bor, 2017). Even in the absence of further information merely looking competent seems important for electoral success (Antonakis & Dalgas, 2009; Ballew & Todorov, 2007; Olivola & Todorov, 2010a, 2010b; Todorov et al., 2005; Todorov et al., 2015). For example, in Todorov et al.'s (2005) seminal study, participants' competence judgments based on portraits of candidates predicted not only the actual election outcome but also the difference in votes between candidates.

Despite numerous evidence for the importance of perceived competence, one may wonder whether competence is equally relevant for all voters. We argue that the importance of politicians' perceived competence for voting likelihood depends on voters' social class with those of higher social class valuing competence more.

Why competence may appeal more to members of high social class

Before we delineate our hypothesis a definition of the key concepts is in order. Social class can be conceptualized by objective components that describe the material resources an individual possesses (Kraus et al., 2012) such as financial resources, educational attainment and occupational prestige. We refer to these as objective socioeconomic status (SES). Previous research shows that SES is linked with individuals' perceived rank in society in comparison to others, a concept often referred to as subjective social status (SSS; Adler et al., 2000; Kraus et al., 2013). While SSS and SES tend to be moderately positively correlated, SSS goes beyond SES by capturing social comparison processes aside from objective assessments (e.g., Tan et al., 2020).

With regard to our second central concept, competence, we follow the concepualization of the Big Two framework (Abele et al., 2016; Abele & Wojciszke, 2007, 2014) which postulates two main content dimensions of social judgment, namely agency and communion. In this model, competence is conceptualized as one subfacet of agency and defined as the ability to accomplish tasks, i.e. intelligence and skill. In contrast, assertiveness, the second facet of agency, is understood as one's motive to promote the self, i.e., ambitiousness and self-confidence. Communion, on the other hand, encompasses the two subfactes warmth (reflecting empathy and likeability) and trustworthiness (reflecting sincerety and honesty).

Importantly, stereotypes of high and low status groups differ on these dimensions. High-status people are believed to be more competent than low-status people (Cuddy et al., 2008; Fiske et al., 2002; Fiske et al., 2007). This stereotype of higher competence of high status groups seems to be shared in many societies (Durante et al., 2013) and, crucial for our argument, is shared by high status people about themselves (Abele, 2003; Belmi et al., 2020; Oldmeadow & Fiske, 2010). Assuming that competence plays a larger role in the self-concept

of high- compared to low-status people (see Kraus et al., 2012) we argue that this trait can be considered as chronic self-relevant knowledge, i.e., a schematic trait.

Schematic traits guide the processing of information about oneself and about others (Fong & Markus, 1982; Markus, 1977; Shoda & McConnell, 2013). When perceiving others people primarily attend to information related with their own self-schema (Fong & Markus, 1982; Riggs & Cantor, 1984) and weigh these information more heavily when forming an impression of the target (Carpenter, 1988; Sedikides & Skowronski, 1993). Indeed, people from a higher social class distinguish others especially with regard to their perceived competence (Oldmeadow & Fiske, 2010). Accordingly, one may expect that higher-class voters base their evaluation of politicians more on perceived competence than lower-class voters.

This assumption is in line with findings that voters generally evaluate politicians more positively when they share personality characteristics (Caprara et al., 2007; Caprara & Zimbardo, 2004). As higher-class voters feel more competent, they may perceive candidates who appear more competent as more similar.

Specifically, we argue that people of higher SES are competence-schematics and should therefore value competence in politicians more than people of lower SES. People of higher SES share specific experiences during their socialization in an environment that is determined by educational and financial achievement (e.g., Stephens et al., 2014), and as competence is instrumental to both the concept is omnipresent and easily accessible. These experiences might foster a class-specific tendency to establish competence as schematic trait and distinguish and evaluate others accordingly.

For SSS, we do not have a firm hypothesis regarding a preference for competence. One may assume that people who think of themselves as high in social status also ascribe themselves the attributes stereotypically ascribed to high status people. This assumption would predict similar effects for SES and SSS if self-schema is responsible for the effects. However, it is unclear whether the self-schema of people high in SSS parallels that of people high in SES. It is noteworthy that previous studies on the importance of candidate traits found diverging effects of SES and (manipulated or chronic) SSS (Callaghan et al., 2022; Tan & Kraus, 2018).

For our main hypothesis that voters high in SES weigh competence in a politician more heavily than lower-class voters there is already some supporting evidence. Analyses of data from the American National Election Studies (ANES) show that voters with higher educational attainment were more likely to mention competence when asked to name aspects that might make them vote for/against presidential candidates than less educated voters (Miller et al., 1986). Importantly, this group of voters was more likely to state that competence (vs. warmth) is an important characteristic in an ideal US president (Kinder et al., 1980). Likewise, a more recent analysis of ANES data (Laustsen & Bor; 2017; Table SI.11b) reveals a significant interaction between voters' educational level and politicians' perceived competence on vote choice in the proposed direction.[6]

Moreover, Callaghan et al. (2022) presented descriptions of politicians in form of word clouds expressing competence or warmth. Compared to participants of lower SES those of higher SES indicated a higher voting likelihood for the candidate presented as competent

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[6] The authors do not interpret this effect.

and were more likely to prefer the competent over the warm candidate. The present research goes beyond the previous evidence by not only relying on self-reported importance but moreover by testing whether the effect manifests for the impact of competence perceived from facial appearance on voting preferences.

The Present Research

Four studies tested the hypothesis that the perceived competence of a political candidate has a larger impact on the propensity of voting for this candidate among voters with higher SES.

In contrast to previous research which has focused on US samples, we investigate the association between social class and important candidate traits in the German context. Beyond reasons of external validation, a conceptual replication outside the USA is particularly relevant in this case as the societal structure of the USA may have contributed to the previously observed effects.

The fact that people of higher social class consider competence as more important than people of lower social class may be particularly pronounced in the USA for two reasons: Firstly, competence is a trait which is specifically valued in individualistic cultures. Within a culture people who excel on the dimensions valued in this culture are more likely to ascend to higher positions and in turn may hold those values particularly dear (Gobel & Miyamoto, 2022). Thus, the association of higher status with more individualistic traits is particularly pronounced in individualistic cultures (Zhang et al., 2020; Gobel & Miyamoto, 2022). It should be noted that although Germany is more individualistic than collectivistic (Hofstede et al., 2010) it is much less individualistic than the USA, the most individualistic country in the world. Possibly the association between social class and a preference for competence is stronger in the USA due to its extreme position on the individualism-collectivism scale. In Germany, as a less individualistic society, social classes may differ less in how they value such individualistic traits.

Secondly, compared to the USA, Germany is characterized by a lower level of economic inequality (Gini index 2018: 41.4 vs. 31.7; World Bank, 2023). In regions with higher income inequality social status appears to be more salient (Paskov et al., 2013) and social class effects on psychological outcomes tend to be larger (e.g., Schneider, 2019). Also, social class stereotyping, i.e., the perception of higher social classes as more competent compared to lower social classes, increases with higher inequality (Durante et al., 2017). All this considered, social class effects may be particularly pronounced in the USA.

Investigating the effects across a different political and societal context, our studies provide important information on their robustness and generalizability. In Study 1, we relied on self-reports. Participants of a representative sample ($N = 2239$) rated the importance of competence and other attributes in a politician, and also rated how competent they perceived themselves which allowed us to explore the presumed mediation of self-concept.

In Studies 2a/b and 3, we employed a less obtrusive methodology. Going beyond previous studies we did not rely on self-reported trait importance, which may be prone to self-presentation effects. Rather we drew on findings showing an advantage for competent-looking politicians (Todorov et al., 2005). Participants were shown portrait photographs of politicians who varied in their perceived competence according to pretest ratings. For each politician

participants indicated their voting likelihood. Using pictures rather than self-reported importance tested whether perceived competence is spontaneously more appealing to voters of higher compared to lower social class.

In all studies we explore the role of chronic SSS in addition to SES. Study 1 explored whether SSS and SES had similar effects on people's self-schema and whether possible differences in self-schema might be responsible for the diverging effects of SES and SSS found in previous research by Callaghan et al. (2022).

We had no firm expectation about the importance of warmth in politicians depending on SES or SSS. Assuming that social classes differ in how important they consider certain traits in a politician because of differences in their self-concept, it is not clear what to expect regarding the importance of warmth. Research shows mixed results on the class stereotype on warmth depending on country (Durante et al., 2013, but see also Durante et al., 2017). More crucially, regarding self-concept there was either no (Abele, 2003) or even a weak negative relationship (Boileau, 2022). Finally, there is evidence that individuals with lower SES only prefer warm candidates when their warmth appears to be genuine (Tan & Kraus, 2018).

Two studies were preregistered (Study 2b: https://aspredicted.org/436zf.pdf, Study 3: https://aspredicted.org/s3743.pdf). All preregistrations included study design, stopping rule, exclusion criteria and planned analyses. All preregistered analyses are reported in the manuscript and any deviations were marked. For each study, sample size was determined before data analysis. All measures, manipulations, and exclusions of the presented studies are reported.

Study 1

In Study 1, we investigate if people's social class is related to how important they consider competence in political candidates. Specifically, we rely on self-reported importance ratings which were part of a large-scale survey with a nationally representative German sample that was originally conducted as part of a different, unrelated research project. To isolate the association between social class and the reported importance of competence, we tested this effect relative to the other three main facets of social judgments in the Big Two model (Abele et al., 2016) – assertiveness, warmth and trustworthiness.

Especially separately investigating competence (as ability) and assertiveness (as motivational component) might provide new insights. While most of the previous research in this domain referred to competence but actually measured a combination of both traits (e.g., Callaghan et al., 2022; Funk, 1999), there are first studies indicating that competence and assertiveness should be dissociated when investigating weight attached to candidate traits (Mignon et al., 2016). Consequently, a differentiation between both traits can help to better understand social class effects.

We also assessed participants' self-schema to explore its role as possible mediator. In addition to investigating the role of SES, we explored whether SSS showed a similar pattern.

Finally, we attempt to rule out individuals' political orientation as alternative explanation. A higher income has often been linked with a more right political orientation (e.g., Page et al., 2013). Additionally, political orientation is associated with the value attached to assertiveness (Eriksson, 2018). Even though competence has often been considered a non-ideological dimension (e.g., Mignon et al., 2016), it is crucial to clarify if

political orientation plays a role in the association between social class and the importance of competence in politicians.

Method

All materials (exceptions for Study 2a/b and 3: politicians' pictures (shared upon request); materials of the pretest), R code for all reported analyses, data and codebooks are available at: https://osf.io/rfvbj/

Materials. Participants indicated how important they considered being "competent", "assertive", "likeable" and "trustworthy" for a politician on a scale from 1 *(not at all important)* to 5 *(very important)*.

To explore the presumed mediation by self-schema, we assessed participants' self-perception on these characteristics with three attributes each (Cronbach's α = .77-.87) on a scale from 1 *(not at all)* to 5 *(completely)* (see Supplement, Tables S1/2).

Participants. Data from 2469 German participants were collected via an online access panel provider. The sample was representative for the German population regarding age, gender and education. After excluding participants who did not know their annual household income and participants who did not want their answers to be used, we arrived at a final sample of 2239 participants (1095 female, 1136 male, 8 diverse, M_{age} = 46.02 years, SD_{age} = 14.33). This sample size was sensitive to detecting an effect size of r = .05 or higher given 80% power and alpha = 0.05 (Faul et al., 2009).

Procedure. The questions were part of a larger online study which was conducted with SoSci Survey (Leiner, 2019) and introduced as a study on political attitudes. All variables of interest for Study 1, aside from people's self-perceived traits, were assessed before an experimental manipulation that was part of a different, unrelated research project. Self-perceived traits did not differ significantly between the experimental and control groups (all ps > .200).

Firstly, demographics were assessed (gender, age, federal state). Then, SSS was measured with the MacArthur Scale (e.g. Adler et al., 2000) and participants indicated their educational level on a scale with 8 options plus an "other" option (*Median* = secondary school certificate). Next followed further questions on (political) attitudes that were not relevant to the present paper, as well as one item for global political orientation (1 = *left*; 9 = *right*). Then, participants rated the importance of competence and further candidate traits as described above as well as the importance of further characteristics irrelevant to the present paper (e.g., having a good concept for climate protection). After an experimental manipulation and further variables irrelevant to this paper (see Supplement (1) for a complete list) participants indicated their self-reported competence, assertiveness, warmth and trustworthiness. Finally, they reported their current monthly net household income on category options from 1 (*below 500€*) to 13 (*10000€ and more*) (*Median = 2000€ – below 2500€)* plus a "don't know" option.

Results

Reported importance of competence. Overall, participants indicated that competence in a politician was rather important ($M = 4.39$, $SD = 0.85$, 5-point scale). We coded and z-standardized educational level and household income and created an index of SES by taking their mean (see Kraus & Keltner, 2009). Consistent with our hypothesis, a higher SES was significantly positively associated with reporting a higher importance of competence in political candidates, $r(2237) = .08$, 95% CI [0.04, 0.13], $p < .001$.

However, the investigated sample was representative only with regard to education but not income. A comparison of the income distribution in our sample with the German population (German Federal Statistical Office, 2022) shows that our sample is characterized by an overrepresentation of individuals with lower household income and an underrepresentation of individuals from the highest income category of 5000€ and above (see Supplement, Table S3). Thus, we created a subset which was representative for the German population regarding household income. For this purpose, we divided the sample into ten income categories parallel to those described in the Microcensus and randomly drew individuals from these subgroups to obtain a new dataset with the same ratio of income categories as the German population. In this subset ($N = 1200$), again a higher SES was significantly associated with a higher importance of politicians' competence, $r(1198) = .10$, 95% CI [0.04, 0.15], $p < .001$.

Robustness checks. Overall, SES was not associated with political orientation, $r(2237) = .01$, 95% CI [-0.03, 0.05], $p = .597$. Importantly, the association between SES and the rated importance of competence remained robust when controlling for political orientation, $b = .09$, 95% CI [0.05, 0.14], $SE = 0.02$, $t(2239) = 4.06$, $p < .001$.

As shown in Table 1, SES was not significantly related to the reported importance of assertiveness or warmth, but unexpectedly, people with higher SES indicated a higher importance of trustworthiness. When controlling for the reported importance of the other three facets of the Big Two model (Abele et al., 2016), SES continued to positively predict the importance of competence in politicians, $b = .06$, 95% CI [0.03, 0.09], $SE = .01$, $t(2234) = 3.92$, $p < .001$.

Subjective social status (SSS). Overall, SSS was positively correlated with SES, $r(2237) = .53$, 95% CI [0.50, 0.56], $p < .001$. Similar to SES, the importance of competence increased with higher SSS, $r(2237) = .07$, 95% CI [0.03, 0.11], $p < .001$. However, SSS was significantly positively correlated with the reported importance of all of the candidate traits (see Table 1). In contrast to SES, SSS was not significantly related to the importance of competence when controlling for the importance of assertiveness, warmth and trustworthiness, $b = .01$, 95% CI [-0.00, 0.02], $SE = .01$, $t(2234) = 1.23$, $p = .219$.

MANUSCRIPT 1: SOCIAL CLASS AND COMPETENCE

Table 1

Descriptive Statistics and Bivariate Correlations among Objective SES, Subjective Social Status, Political Orientation, the Rated Importance of Candidate Traits and Voters' Traits (Study 1).

	1	2	3	4	5	6	7	8	9	10	11
1. SES											
2. SSS	.53										
3. Political Orientation	.01	.07									
4. Importance Competence	.08	.07	-.06								
5. Importance Assertiveness	.01	.07	.02	.65							
6. Importance Warmth	-.00	.07	.00	.47	.48						
7. Importance Trustworthiness	.05	.06	-.05	.72	.65	.54					
8. Own Competence	.19	.25	.05	.35	.35	.28	.33				
9. Own Assertiveness	.14	.26	.13	.13	.23	.19	.15	.62			
10. Own Warmth	.01	.10	-.03	.37	.37	.36	.38	.67	.36		
11. Own Trustworthiness	.05	.07	-.04	.43	.39	.32	.42	.68	.34	.83	
M	0.00	5.03	5.63	4.39	4.16	3.84	4.29	3.66	3.12	3.86	3.99
SD	0.79	1.75	1.86	0.85	0.86	0.96	0.87	0.77	0.85	0.85	0.83

Note. N = 2239. SES = Socio-economic status. SSS = Subjective social status. Political Orientation was assessed on a scale from 1(*left*) to 9 (*right*).
Self-perceived traits were mean scores based on three items per trait.
All correlations ≥ .05 or ≤ -.05 are statistically significant (*p* < .05).

Mediation via self-perceived competence. SES and self-perceived competence correlated positively, $r(2237) = .19$, 95% CI [0.15, 0.23], $p < .001$. A mediation analysis using the R package lavaan (version 0.6-12; Rosseel, 2012) suggests that the effect of SES on the importance of competence was completely mediated via self-perceived competence, $b = 0.07$, $SE = 0.01$, $z = 8.00$, $p < .001$, 95% CI [0.05, 0.09]. The subsample representative for household income showed the same result, $b = 0.09$, $SE = 0.01$, $z = 6.69$, $p < .001$, 95% CI [0.06, 0.11].

Furthermore, SSS was positively associated with the self-schema of all of the four traits (see Table 1).

Discussion

Supporting our hypothesis and using a representative German sample, we found that the higher the SES, the higher the importance of politicians' competence. This association was independent of political orientation. Furthermore, the data offer preliminary support for differences in the self-concept as presumed cause for this relationship. More concretely, voters with higher SES perceived themselves as more competent and this self-view completely mediated the relationship between SES and the importance of politicians' competence. This is in line with previous findings from the USA that higher-class voters perceive a greater interpersonal closeness with competent politicians (Callaghan et al., 2022). However, as all variables were measured our study offers merely correlational evidence. Thus, we cannot rule out that other potential mediators may also play a role.

Additionally, we acknowledge that the way we assessed self-concept does not inform us to what extent the traits were part of the spontaneously accessible self-concept (schema) that would guide the perception of others (Fong & Markus, 1982; Markus, 1977). While people of high SES also rated themselves as more assertive than people of low SES there was no difference in the importance of this trait for a politician. It seems plausible that people of higher SES are schematic on competence but not on assertiveness as there are many situations and experiences over a lifetime that form and reinforce their perception of being competent. Moreover, competence is unambiguously considered positive. Experiences of assertiveness are probably much less frequent for many people and assertiveness has also negative connotations.

We had predicted the influence of SES on the importance of politicians' competence but had no hypothesis regarding assertiveness which we only assessed as a control variable. Our findings suggest that a distinction between competence that is merely related to ability and other aspects of taking effective action (namely assertiveness) as suggested by Abele et al. (2016) seems appropriate when assessing the appeal of politicians.

For SSS we found a different pattern. Whereas the rated importance of competence increased with SSS similarly to SES, this relationship was not robust when controlling for the importance of other traits. Apparently, in contrast to people of high SES, people with high SSS do not specifically value competence but generally value desirable traits in politicians more compared to people with lower SSS. A recent meta-analysis (Tan et al., 2020) suggests that high positive correlations between the SSS-ladder and other measures may reflect a positive response bias, which would explain why in our study the correlations between SSS and own traits were higher than for SES. This would imply that the higher relevance of

competence among people high in SSS does not necessarily reflect similar processes as in people high in SES. We will return to this issue in the General Discussion.

Altogether we found clear support for our hypothesis that people of higher SES value competence more in politicians compared to people of lower SES. Yet, one caveat needs to be addressed. We only measured what people explicitly reported to be important traits in politicians. It is an open question whether this would really influence their voting decisions. People may mention competence as an important characteristic because they believe that this is what is expected of rational voters. Even if they indeed consider competence as highly important other characteristics may have a larger influence when it comes to actual voting without voters being consciously aware of it. Thus, in the following studies, we investigated the influence of perceived competence on voting likelihood dependent on social class while varying perceived competence less obtrusively and not asking participants directly about how important they considered this predictor.

Study 2a & 2b

The work by Todorov and colleagues (2005; see also Ballew & Todorov, 2007; Olivola & Todorov, 2010a, 2010b) shows that competence perceived only by a politician´s looks influences voting decisions. Based on the results of Study 1, we expect this effect to be stronger for voters with higher SES. To test this hypothesis, we presented pictures of (unknown) politicians' faces with high versus low perceived competence in Study 2a/b and measured voting likelihood. This procedure allowed us to test the influence of perceived competence depending on SES in a rather subtle manner. Additionally, we differentiated the effects of perceived competence from warmth. Warmth appears to be an important basis of comparison as it is typically juxtaposed with competence as a main dimension of interpersonal perception (e.g., Fiske et al., 2002) and people tend to make rapid judgments of this trait (e.g., Fiske et al., 2007). Again, we measured SSS and explored if it played the same role as SES.

Method

Materials. In each of the two studies, we used ten portrait photos selected from a sample of 63 male members of the Swiss national parliament. All pictures were taken from the parliament's website which ensured a uniform portrait style, standard business attire and a similar background. In a pretest, 80 participants rated subsets of portraits regarding the attributes "competent" and "warm" on a scale from 1 (*not at all*) to 11 (*very*) such that each portrait was rated by 20 participants. Our goal was to select one set of pictures with low and one with high perceived competence but to keep warmth at a constant level across the sets. Due to an organizational mistake in Study 2a, there were only 4 pictures in the condition of relatively low perceived competence (pretest competence: $M = 5.65$, $SD = 0.56$, warmth: $M = 6.38$, $SD = 1.42$) and 6 in the condition of relatively high perceived competence (pretest competence: $M = 7.08$, $SD = 0.50$, warmth: $M = 6.25$, $SD = 1.34$). Therefore, we added Study 2b which contained two equally large sets (low competence set: pretest competence: $M = 5.54$, $SD = 0.40$, warmth (measured via "warm", "sincere", "likeable"): $M = 5.80$, $SD = 0.75$; high competence set: pretest competence: $M = 7.85$, $SD = 0.27$, warmth: $M = 5.89$, $SD = 0.24$). The set in Study 2b contained three photos from Study 2a and seven new ones.

Participants. For Study 2a, we collected data from 282 German-speaking participants (with incomplete submissions: 330). For Study 2b, we collected data from 260 German participants on prolific.co (with incomplete submissions: 266). An a-priori power analysis using G*Power for alpha = .05 and a power of 80% to detect a small effect of $f = 0.10$ for the interaction effect of a 2 x 2 mixed ANOVA as a proxy resulted in a sample size of 200. We applied our pre-registered exclusion criteria for Study 2b (failing the attention check, familiarity with any of the politicians, missing/invalid values on key variables, being no native German speaker[7]) also to Study 2a and additionally excluded participants who failed a seriousness check or were below 18 years. After exclusions we arrived at a final sample size of $N = 396$ ($N_{2a} = 195$, $N_{2b} = 201$) participants (220 female, 172 male, 4 diverse; $M_{age} = 28.32$ years, $SD = 9.93$; Study 2a: 138 female, 56 male, 1 diverse; $M_{age} = 26.06$ years, $SD = 9.46$; Study 2b: 82 female, 116 male, 3 diverse; $M_{age} = 30.51$ years, $SD = 9.90$).

Procedure. The procedures in Study 2a/b were almost identical. In both online studies, participants indicated their interest in politics (1 = *not at all*; 7 = *very much*); their political orientation (1 = *left*; 9 = *right*), their voting regularity (11-point scale with higher values indicating a greater regularity) and whether they had been eligible to vote in the last German federal election. Next, SSS was assessed via the MacArthur scale.

Participants were instructed that they would see 10 pictures of randomly selected male politicians. They viewed the faces in an individualized randomized order. Based on measures of Fiske et al. (2002), participants rated perceived warmth ("warm", "friendly", "sincere"; α Study 2a/b = .82/.82) and competence ("competent", "intelligent", "ambitious"; α Study 2a/b = .74/.65) for each politician on a scale from 1 (*not at all*) to 5 (*extremely*) as manipulation check (see Supplement for the German version, Table S4). After this check, participants indicated how likely they would consider voting for this candidate from 1 (*not at all likely*) to 11 (*very likely*).

Finally, participants completed the measures of SES among further demographics (gender, age, German language skills). SES was assessed via educational level as in Study 1 (Study 2a: *Median* = high school diploma; Study 2b: *Median* = university degree) and current annual household income (on a scale from 1 (*below 15,000€*) to 8 (*over 150,000€*) (plus "don't know" option in Study 2a); Study 2a: *Median* = 50,001€ - 75,000€; Study 2b: *Median* = 35,001€ - 50,000€).

Paralleling Study 1, we created an index of SES. Due to the relatively high proportion of students, we additionally computed an *adjusted index* of SES for students and apprentices based on their parents' education (mean of father's and mother's educational level) and current family household income.

Finally, participants indicated if they recognized any of the politicians so that we could exclude these cases. In Study 2a, they indicated whether they had answered all the questions seriously.

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[7]Even though we had preregistered for Study 2b to exclude non-native German speakers, we did not apply this strict criterium to Study 2a. Here, we included 7 participants who reported to speak German for more than 10 years. Excluding these did not change the results.

Results

Manipulation check. In both studies, politicians in the high competence set were perceived as significantly more competent than politicians in the low competence set, Study 2a: $M_{high} = 3.48$, $SD_{high} = 0.44$, $M_{low} = 2.95$, $SD_{low} = 0.50$, $t(194) = 16.10$, $p < .001$, $d = 1.15$, 95% CI for d [0.97, 1.33]; Study 2b: $M_{high} = 3.56$, $SD_1 = 0.44$, $M_{low} = 3.18$, $SD_2 = 0.43$, $t(200) = 14.48$, $p < .001$, $d = 1.02$, 95% CI for d [0.85, 1.19]. Although based on the pretest perceived warmth should not differ between the target politicians, competent-looking politicians were rated as less warm than less competent-looking politicians (Study 2a: $M_1 = 3.12$, $SD_1 = 0.46$, $M_2 = 3.17$, $SD_2 = 0.48$, $t(194) = -1.72$, $p = .087$, $d = -0.12$, 95% CI for d [-0.26, 0.02], Jeffrey-Zellner-Siow (JZS) Prior $BF = 2.94$; Study 2b: $M_{high} = 2.78$, $SD_{high} = 0.50$, $M_{low} = 3.21$, $SD_{low} = 0.53$, $t(200) = -13.36$, $p < .001$, $d = -0.94$, 95% CI for d [-1.11, -0.78], JZS Prior $BF > 1000$).

Likelihood of voting. Due to the parallel design of Study 2a/b and to test our hypotheses with more power, we used a joint analysis including data source (Study 2a or 2b) as additional predictor (see Supplement (3) for separate analyses and the pre-registered linear regression analysis). We conducted a multilevel linear regression with maximum likelihood estimates. The joint model specified a within-subject relationship between perceived competence and voting likelihood that we had predicted to be stronger for participants with higher SES. We grand-mean centered SES as level-2-predictor and used person-mean centering for condition as effect-coded level-1-predictor (-1 = low competence, 1 = high competence) (see Enders & Tofighi, 2007). Data source was included grand-mean centered as dummy-coded level-2-predictor (0 = Study 2a, 1 = Study 2b).

The results are displayed in Table 2. Competence condition had a significant effect on voting likelihood, $b = 0.22$, $SE = 0.03$, $t = 7.12$, $p < .001$, 95% CI [0.16, 0.28]), implying that participants indicated on average a higher voting likelihood for politicians from the high compared to the low competence set. Consistent with our hypothesis, this effect was moderated by SES ($b = 0.12$, $SE = 0.04$, $t = 2.90$, $p = .004$, 95% CI [0.04, 0.20]).[8] The remaining model terms were insignificant (see Table 2, model 1).

Simple slope analyses revealed that the strongest effect of competence condition on voting likelihood was found among participants with high SES (+1 SD; $b = 0.31$, $SE = 0.04$, $t = 7.08$, $p < .001$, 95% CI [0.23, 0.40]), holding all other covariates constant. At low levels of SES, competence condition still had a positive, but smaller effect (-1 SD; $b = 0.13$, $SE = 0.04$, $t = 2.99$, $p = .003$, 95% CI [0.05, 0.22]). A Johnson-Neyman plot (see Figure 1) shows that the effect of competence condition was significant for all values of SES above -1.00 and increased with SES.

Furthermore, the results of parallel analyses using the adjusted score of SES showed similar significance levels (see Supplement, Table S7).

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[8] Separate analyses showed that the interaction effect was only significant in Study 2a, $p = .021$, and not in Study 2b, $p = .224$. In Study 2b, the interaction only reached significance for the adjusted score, $p = .017$. Hence, we conducted a meta-analysis across Study 2a, 2b and 3 (see below).

Figure 1. Conditional effect of competence condition on voting likelihood as a function of objective SES
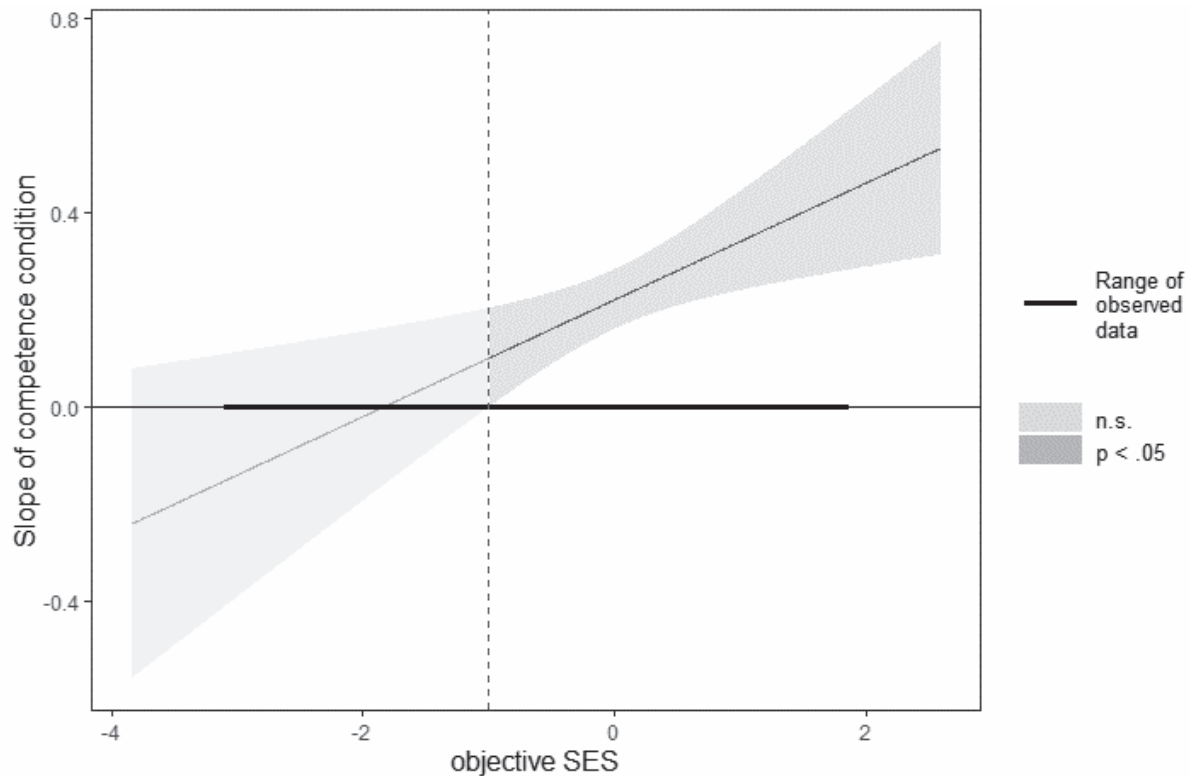
Note. Johnson-Neyman plot for the effect of competence condition on voting likelihood as a function of objective SES. In addition to the point estimate, the 95% Confidence Interval is displayed. The plot was created using the R package interactions (version 1.1.5; Long, 2019).

Exploratory Analyses.

Measured competence as predictor. As the manipulation check indicated that perceived warmth and competence of the two sets were confounded, we analyzed the data using measured competence and warmth as predictors. In a parallel analysis, we included both measured traits (from the manipulation check) as level-1-predictors (person-mean centered) with random slopes instead of competence condition. Perceived competence had a significant effect on voting likelihood, $b = 1.32$, $SE = 0.04$, $t = 30.80$, $p < .001$, 95% CI [1.23, 1.40]. Additionally, warmth had a significant effect, $b = 1.51$, $SE = 0.04$, $t = 39.80$, $p < .001$, 95% CI [1.43, 1.58]. Importantly, only the interaction effect between competence and SES was significant, $b = 0.19$, $SE = 0.06$, $t = 3.21$, $p = .001$, 95% CI [0.07, 0.30][9], but the interaction between warmth and SES was not, $b = -0.03$, $SE = 0.05$, $t = -0.61$, $p = .543$, 95% CI [-0.13, 0.07]. Irrelevant to our hypothesis, the effect of warmth was larger in Study 2b compared to Study 2a, $b = 0.18$, $SE = 0.08$, $t = 2.40$, $p = .017$, 95% CI [0.03, 0.33]. Furthermore, the effect of competence on voting likelihood was larger for politicians with high warmth, $b = 0.26$, $SE = 0.04$, $t = 6.99$, $p < .001$, 95% CI [0.19, 0.34]. The other model terms were non-significant (see Table 2, model 2). Controlling for political orientation, political interest and voting

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[9] This was also the case for 2b, $p = .007$, while the effect was marginally significant in study 2a, $p = .057$.

regularity did also not change the pattern of results ($p < .001$). Further robustness checks can be found in the supplement (Table S8-11).

   Subjective Social Status (SSS). When including SSS in the main analyses instead of SES neither the interaction with the competence condition nor the interaction with measured competence on voting likelihood was significant, $p = .196$ / $p = .851$ (see Supplement, Table S10).

Table 2

Parameter Estimates for Multilevel Model of Voting Likelihood (Study 2a and 2b)

Fixed effects	Model 1					Model 2				
	b	SE b	t	p	95% CI[a]	b	SE b	t	p	95% CI[a]
Intercept	5.46	0.07	76.50	<.001	5.32, 5.60	5.47	0.07	76.35	<.001	5.33, 5.61
Competence - Condition	0.22	0.03	7.12	<.001	0.16, 0.28					
Meas. Warmth						1.51	0.04	39.80	<.001	1.43, 1.58
Meas. Competence						1.32	0.04	30.80	<.001	1.23, 1.40
Obj. SES	0.05	0.10	0.54	.588	-0.14, 0.24	0.05	0.10	0.52	.605	-0.14, 0.24
Source	-0.12	0.14	-0.87	.387	-0.42, 0.17	-0.15	0.14	-1.04	.297	-0.43, 0.13
Meas. Warmth x Source						0.18	0.08	2.40	.017	0.03, 0.33
Meas. Competence x Source						-0.13	0.09	-1.56	.120	-0.30, 0.04
Meas. Warmth x Meas. Competence						0.26	0.04	6.99	<.001	0.19, 0.34
Competence - Condition x Obj. SES	0.12	0.04	2.90	.004	0.04, 0.20					
Meas. Warmth x Obj. SES						-0.03	0.05	-0.61	.543	-0.13, 0.07
Meas. Competence x Obj. SES						0.19	0.06	3.21	.001	0.07, 0.30
Obj. SES x Source						0.16	0.19	0.82	.410	-0.22, 0.54
Meas. Warmth x Obj. SES x Source						-0.10	0.10	-0.94	.349	-0.31, 0.11

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Table 2 (continued)

Meas. Competence x Obj. SES x Source	0.06	0.12	0.53	.595	-0.17, 0.29

Random effects ([co-]variances)

Intercept	1.65			1.90		
Competence-Condition	0.00	0.01				
Meas. Competence				0.29	0.27	
Meas. Warmth				0.28	0.04	0.00
Residual	3.74			1.22		

Note. $N = 396$, 10 pictures per Study, 3,960 observations. ICC for model 1 = .31, ICC for model 2 = .64. b = unstandardized coefficient, SE = standard error Competence-Condition -1 = Low Competence, Competence-Condition 1 = High Competence. Meas. = Measured. Source 0 = Study 2a, Source 1 = Study 2b.
[a]Confidence intervals were computed from the profiled likelihood.

Discussion

Whereas Study 1 showed that people of higher SES rated politicians' competence as more important than people of lower SES, Studies 2a/b showed that this also translates into differences in preference for competent-looking politicians between voters of higher and lower SES. Replicating the results of previous studies (Ballew & Todorov, 2007; Todorov et al., 2005), participants overall indicated a higher voting likelihood for more (vs. less) competent-looking politicians. As expected, the effect of perceived competence on voting likelihood was larger among participants with higher SES. The interaction effect was small, but the result supports our hypothesis that politicians' perceived competence is more appealing to higher- than to lower-class voters.

Consistent with the finding from Study 1 that the relationship between SSS and the importance of candidates' competence is less robust, SSS did not play a role in the weighting of perceived competence. Apparently, voters with high SSS explicitly express a higher preference for competent politicians but do not spontaneously take this cue into account. We will address this finding together with the results of SSS from Study 1 and 3 in the General Discussion.

Finally, we must consider that the procedure of assessing perceived competence (and warmth) before voting likelihood may have increased its accessibility. Although this would not explain why the effect was stronger for voters with high SES we cannot claim that people of higher SES would also spontaneously give more weight to competence than people with lower SES. To explore this issue we modified our design for Study 3.

Study 3

In Study 3, we changed the design of Studies 2a/b regarding several aspects. Firstly, we assessed voting likelihood before warmth and competence. Secondly, because the dichotomization of faces with low vs. high perceived competence reduces the power, we included a larger sample of pictures in Study 3. Thereby, we ensured that politicians with perceived competence across the whole spectrum of our pretest ratings were included. Thirdly, we replaced the attribute "ambitious" with "capable" to assess perceived competence without any aspects linked to assertiveness.

Finally, we cannot rule out that the effects observed in Studies 2a/b were due to another trait perceived from the faces that was confounded with competence. Of course, we cannot control for all possible traits but chose to control for perceived dominance in Study 3. Dominance plays an important role to achieve social rank aside from demonstrating competence (Cheng et al., 2013). Additionally, more dominant-looking people are perceived as having a higher status (Rahal et al., 2021). Thus, a more dominant-looking politician might also elicit a higher perceived similarity among higher-class voters. In Study 3, we therefore controlled for perceived dominance with separately assessed ratings of the politicians' perceived dominance.

Method

Materials. We used pictures from the same database of politicians as in Studies 2a/b but selected 32 pictures covering the whole range of competence levels based on the pretest. More concretely, we ordered the pictures according to pretest competence ratings and selected every other picture (range on 11-point scale: 5.05 - 8.5). Additionally, we standardized the

background to be completely white for all portraits.

In a further study ($N = 96$; 32 female, 63 male, 1 diverse; $M_{age} = 31.57$, $SD_{age} = 10.04$) run via prolific.co, participants rated the 32 pictures on either how "competent" ($n = 30$), "warm" ($n = 35$), or "dominant" ($n = 31$) they perceived each politician on a scale from 1 (*not at all*) to 5 (*very*).

Participants. We conducted a simulation using the R package SIMR (version 1.0.6; Green & MacLeod, 2016) to estimate the power for a cross-level interaction effect in a two-level model (Arend & Schäfer, 2019). Results indicated that 370 participants would suffice to provide 80% power to obtain a standardized effect size of 0.10 keeping alpha at 5%. We pre-registered a minimum sample size of 400 valid cases and collected complete data[10] from 425 German participants on prolific.co. Following pre-registered exclusion criteria (failing any attention check, recognizing any of the depicted politicians, missing/invalid values on key variables), we arrived at a final sample of 400 participants (169 female, 220 male, 11 no answer provided; $M_{age} = 30.59$ years, $SD_{age} = 8.83$).

Procedure. Study 3 was conducted online. The beginning of the study and the assessment of covariates was identical to Study 2a/b. Then participants read that they would see 32 pictures of male politicians. In the first phase, they viewed the faces individually and indicated their voting likelihood for each as in Study 2a/b. Thereafter, half of the participants ($n = 203$) rated first perceived competence for all politicians and then warmth (phases 2 and 3) whereas for the others ($n = 197$) the order was reversed. In each study phase, pictures were presented in a randomized order. Perceived competence and warmth were rated as in Study 2a/b except that the attribute "ambitious" was replaced by "capable".

Based on these measures, we created two scores for each politician: Competence (Cronbach's α: .81 - .89) and warmth (Cronbach's α: .78 - .87).

Afterwards, participants completed the same measures of SES including educational attainment (*Median* = university degree) and household income (*Median* = 35.001€ - 50.000€) as in Study 2a/b among further demographics. Finally, they indicated if they had recognized any politician.

Results

Likelihood of voting. Again, we computed a composite score of SES. We then computed multilevel linear regression models for voting likelihood as criterion parallel to Study 2a/b. In model 1, we included measured competence (level 1), SES (level 2) and their interaction. In model 2, we additionally controlled for warmth (level 1) and its interaction with SES. All level-1-variables were person-mean centered and SES was grand-mean centered. We included a random intercept for participants, random slopes for the level-1-predictors and grouped the data by participants.

Again, measured competence significantly predicted voting likelihood (model 1), $b = 1.10$, $SE = 0.03$, $t = 36.61$, $p < .001$, 95% CI [1.04, 1.16]. Furthermore, warmth and

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[10] Among the incomplete participations were 79 participants who failed an attention check and 23 participants who did not complete the questionnaire.

competence were significantly correlated, *repeated-measures r*(12399) = .35, *p* <.001. Therefore, we controlled for the influence of warmth and its interaction with SES in model 2. In this model, both competence, *b* = 0.83, *SE* = 0.03, *t* = 28.43, *p* < .001, 95% CI [0.77, 0.88], and warmth, *b* = 0.72, *SE* = 0.03, *t* = 25.30, *p* < .001, 95% CI [0.67, 0.78], significantly predicted voting likelihood. Although the interaction of competence and SES showed the same trend as in the previous studies when controlling for the interaction between warmth and SES, it fails to reach significance at conventional significance levels (model 2: *b* = 0.08, *SE* = 0.04, *t* = 1.95, *p* = .052, 95% CI [-0.00, 0.15]). The rest of the model terms were non-significant (see Table 3).

Including political orientation, political interest and voting regularity as covariates did also not change the pattern and the results were robust to using the adjusted SES score (see Supplement for further robustness checks, Table S14-15).

Exploratory Analyses.

Further independent ratings of competence, warmth, and dominance. To disentangle perceived competence from dominance as possibly confounded trait, we had an independent sample rate the faces for competence, dominance, and warmth as described above. We repeated the main analyses using these independent competence ratings as predictor (level 2, grand-mean centered) as well as the interaction with SES to predict voting likelihood. In contrast to the competence ratings from Study 3, politicians' independently perceived competence did not only predict voting for them, *b* = 1.65, *SE* = 0.05, *t* = 33.26, *p* < .001, 95% CI [1.55, 1.74]), but – in line with our hypothesis – this effect was significantly moderated by SES, *b* = 0.15, *SE* = 0.06, *t* = 2.36, *p* = .018, 95% CI [0.03, 0.28]).

Additionally including independent dominance and warmth ratings showed that the interaction between competence and SES remained robust, *b* = 0.18, *SE* = 0.06, *t* = 2.78, *p* = .005, 95% CI [0.05, 0.31]). Furthermore, SES significantly moderated the effect of dominance, *b* = 0.13, *SE* = 0.05, *t* = 2.50, *p* = .013, 95% CI [0.03, 0.23]). Higher perceived dominance was significantly associated with *lower* voting likelihood at low levels of SES but not at higher levels (see Table S16 in the Supplement for complete results).

Table 3

Parameter Estimates for Multilevel Models of Voting Likelihood (Study 3)

	Model 1					Model 2				
Fixed effects	b	SE b	t	p	95% CI[a]	B	SE b	t	p	95% CI[a]
Intercept	5.12	0.06	79.22	<.001	4.99, 5.25	5.12	0.06	79.22	<.001	4.99, 5.25
Warmth						0.72	0.03	25.30	<.001	0.67, 0.78
Competence	1.10	0.03	36.61	<.001	1.04, 1.16	0.83	0.03	28.43	<.001	0.77, 0.88
Obj. SES	0.12	0.08	1.40	.162	-0.05, 0.28	0.12	0.08	1.40	.162	-0.05, 0.28
Warmth x Obj. SES						-0.02	0.04	-0.41	.681	-0.09, 0.06
Competence x Obj. SES	0.03	0.04	0.86	.393	-0.04, 0.11	0.08	0.04	1.95	.052	-0.00, 0.15
Random effects ([co-]variances)										
Intercept			1.57					1.59		
Warmth								0.14		
Competence		0.16	0.29					0.14		
Residual			3.06					2.69		

Note. $N = 400$, 32 pictures, 12,800 observations. Warmth and competence refer to the perceived traits as measured in Study 3. b = unstandardized coefficient, *SE* = standard error

[a]Confidence intervals were computed from the profiled likelihood.

Subjective Social Status (SSS). When including SSS in the main analysis (model 2) instead of SES, it did not significantly interact with measured competence, $p = .082$.

Discussion

Study 3 replicated the finding from Study 2a/b with more fine-grained stimulus material insofar as looking competent as well as looking warm increased a politician's electoral success. This appeared to be the case even when these dimensions were not made salient.

Regarding our main hypothesis that specifically perceived competence is more important to voters of higher SES, the results are in line with the predictions and our previous studies, but the effect was small and depending on the analysis was or was not significant. The effect fell beneath conventional significance levels ($p < .052$) when using the competence ratings assessed in the same study as voting likelihood, it was significant when using competence ratings from an independent study ($p < .018$). Moreover, an analysis of extreme cases, similar to Studies 2a/b (see Supplement (6)), also supported the hypothesis. Given that all analyses pointed in the same direction we interpret the data as supporting our hypothesis and previous studies.

Study 3 ruled out that perceived dominance may have caused the effect. Controlling for dominance strengthened rather than weakened the effect. The independence of competence and dominance is in line with the results of Study 1 which found class effects on the weighting of competence but not of assertiveness and again speaks for separating the sub-facets of agency. Interestingly, we find first evidence that dominance can lead to negative evaluations of politicians among lower-class voters while it apparently does not matter to higher-class voters. However, this finding is preliminary, and its deeper discussion exceeds the scope of this paper.

Again, replicating the finding of Study 2a/b, the results for SSS did not parallel those of SES. We discuss the apparent divergent patterns for SES and SSS in the General Discussion.

Mini Meta-Analysis

Overall, Studies 2a/b and 3 point in the same direction that voters' social class moderates the effect of perceived competence from politicians' faces on voting likelihood. However, the effect sizes were small and depending on study and analysis not always significant (Study 3, $p = .052$). Thus, we conducted a small-scale fixed-effects meta-analysis (Goh et al., 2016) for Studies 2a, 2b and 3 (included separately, see Supplement (8)). For the interaction effect between SES and perceived competence when controlling for warmth and its interaction with SES, the mini meta-analysis showed a significant effect, $M r = .14$, 95% CI [0.07, 0.20], $Z = 3.81$, $p < .001$, attesting that a politician's competent appearance influenced voters of high SES more than those of low SES.

General Discussion

Four studies extend previous work on the role of perceived competence when evaluating politicians by showing that the preference for competence depends on voters' social class.

More concretely, perceived competence appears to be more important for higher than for lower class voters. In Study 1, voters of higher SES rated competence in a politician as more important compared to voters with of SES. This result complements previous findings (Callaghan et al., 2022; Laustsen & Bor, 2017). Observing this effect in the German context which is characterized by a lower economic inequality and thus potentially smaller social class effects compared to the USA speaks to the robustness of a link between social class and a preference for competence. Moreover, the effect does not seem to be limited to an extremely individualistic society as the USA.

Whereas Study 1 provides evidence from a representative sample based on explicit ratings, Studies 2 and 3 go one step further and use a more implicit method by assessing the voting likelihood for politicians varying in competent appearance based on looks. According to the results, politicians' perceived competence has a larger influence on voting likelihood among higher-class voters. This was the case even when controlling for other impressions elicited by the faces, namely warmth and dominance. Thus, our research provides first evidence that social classes do not only differ in what they say they find important in a politician but also in what they are actually considering, i.e., less controlled responses.

A potential mechanism underlying the preference for competence among higher-class voters is voters' self-perception. We argue that high competence is more likely part of higher (vs. lower) social class people´s self-schema. Given that the self-schema guides the perception and evaluation of others (Carpenter, 1988; Fong & Markus, 1982; Green & Sedikides, 2001; Riggs & Cantor, 1984) people of higher social class should perceive and judge others according to competence cues. Moreover, people generally prefer politicians who are similar to them (Caprara et al., 2007). Study 1 supported our assumptions. Not only did participants of higher SES perceive themselves as more competent this self-concept fully mediated the effect of SES on the weighting of competence. Furthermore, exploratory analyses for Studies 2a/b and 3 (see Supplement (5) for details) indicated that people of higher SES did not only place a larger weight on perceived competence but, independent of this preference, also differentiated more between politicians with high and low competence than participants of lower SES. The finding that higher-class voters perceived politicians' competence in a more nuanced way than lower-class voters suggests that they are more sensitive for competence-related cues in politicians' appearance. This supports the assumption of higher-class people being competence schematics which makes them attend more to this trait when judging others (Fong & Markus, 1982).

A comparison of Studies 2a/b and 3 suggests that the effect appears to be stronger when competence is made salient beforehand. Apparently drawing perceivers' attention to competence has different effects depending on social class. We acknowledge that further evidence is needed. But even if the effects were limited to prior activation of competence as in Studies 2a/b this may be closer to real world situations than the absence of prior activation. It seems unlikely that voters form their first impression of a candidate in the voting booth. Rather following a candidate's public appearances and media coverage makes it likely that an impression of competence is explicitly activated. Accordingly, the increased accessibility of competence elicited by the question order in Study 2a/b might resemble the actual psychological processes when evaluating politicians.

Whereas we found converging evidence for the effect of SES the results do not support similar conclusions for SSS. When explicitly asked (Study 1) high SSS increased the relevance of competence but also of all other traits and the self-ratings on these traits rendering inflated effects due to common method variance likely (see Tan et al, 2020). This would imply that the higher relevance of competence among people high in SSS is an artefact and does not reflect similar processes as in people high in SES. Likewise, the lack of effects of SSS on the more subtle measure of Studies 2a-3 speaks against the functional equivalence of SSS and SES in this regard. This is also in line with previous research that did not find effects of manipulated SSS on the relevance of politicians' competence (Callaghan et al., 2022). Our assumption of people of high SES being competence schematics was based on the fact that in their environment that is characterized by educational and financial achievement competence plays an omnipresent role and becomes important when judging the self as well as others. To the extent that SSS represents similar socialization processes its effects should be similar. However, SSS is more dependent on the current context in which it is assessed (Destin et al., 2017) and potentially less closely linked with socialization processes. Future research may shed light on the divergent findings on SES and SSS.

Our main result has implications for the well-established effect of perceived competence on electoral outcomes (e.g., Todorov et al., 2005). Generally, members of higher social class show a higher level of political participation (e.g., Kraus et al., 2015). Also, in our studies higher class participants were more likely to have voted in the last German federal election (Study 1: $r = .22$, $p < .001$) and reported to vote more regularly (Study 2a/b: $r = .18$, $p < .001$, Study 3: $r = .19$, $p < .001$). Hence, higher class voters might partially drive the effect of perceived competence on electoral success through their relatively higher turnout rate. For political actors, it appears worthwhile to consider the social class of the target audience in the campaign. Focusing on competence may be a promising strategy for winning voters of higher social class but may not pay off among voters of lower social class.

As our research focused on competence the stimulus material maximized variance on competence and any conclusions regarding other traits can only be preliminary. With this in mind, we summarize that in none of the studies did we observe a class difference on the importance of warmth. Although research reports a warmth stereotype for lower social status groups (Durante et al., 2017), based on which one may expect that warmth is more important to voters of lower social class, it should be noted that this stereotype is not observed in all countries (Durante et al., 2013). More crucially, our assumptions are based on self-stereotypes, and we did not find that people of lower SES think of themselves as warmer than people of high SES.

Limitations and Future Directions. As voting plays an essential role for the functioning of democracies, it is important to examine which factors influence voting decisions. The current studies add to research on how interpersonal perception influences electoral outcomes. However, we acknowledge some limitations.

Firstly, the characteristics of the politicians' faces that were used in Studies 2a-3 limit the generalizability of our results. Specifically, we used pictures of white[11], male politicians. Specifically, the weight attached to perceived competence might be different for male and female politicians. It has been shown that competence-related information is more important when evaluating female candidates (Ditonto, 2017). Also, none of the candidates depicted was characterized by an extreme lack of perceived competence. This might be due to the fact that these politicians were part of the Swiss parliament and, hence, already had had some electoral success. Future research should investigate the role of social class for weighting competence when evaluating politicians of different gender and ethnic background as well as politicians with a greater lack of perceived competence.

Secondly, the samples in Study 2a-3 were not representative of all voters as they did not include people from the extreme ends of the social class spectrum. Especially people with low education did not participate in these studies. This, however, suggests that the weighting of perceived competence which we found despite the restricted variance in SES might be even larger in real-world settings.

Thirdly, the societal and political context of our studies always poses a limitation to our research. Investigating social class effects with German samples supports the generalizability of previously found effects in the USA context, but still more studies with samples from different societies are needed to generalize the results. In fact, assuming that competence is more valued in individualistic than collectivistic societies and class differences manifest more on traits generally regarded highly in a society (Gobel & Miyamoto, 2022) one may expect a divergent pattern for collectivistic societies.

As a further issue, as we cannot manipulate SES we cannot determine whether the observed effect is not due to a third variable. Nevertheless, our hypothesis was based on assumptions about differences in the self-concept between people of higher and lower SES and we found evidence for this assumed mediating process.

Conclusion

The present research underlines the importance for politicians of being perceived as competent. But perceived competence – even when only based on facial appearance – appears more important for voters of higher compared to lower social class. The reason for this difference seems to lie in systematic differences in the self-concept of members of higher and lower class. Generally, social class has only recently been discovered as predictor for fundamental psychological processes (e.g., Kraus et al., 2012) like person perception. As social class has an omnipresent influence on a person´s identity it is high time psychological research pays more attention to its impact.

Appendix A. Supplementary Material

Supplementary material to this article can be found in the online appendix.

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[11] As are over 99% of the members of the German parliament (as of 2023).

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TITLE: Jumping on the Bandwagon: The Role of Voters' Social Class in Poll Effects in the Context of the 2021 German Federal Election

CRITICAL PAPER

Jumping on the Bandwagon: The Role of Voters' Social Class in Poll Effects in the Context of the 2021 German Federal Election

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Abstract Published findings of opinion polls are an important part of the political coverage before elections. Thus, researchers have long investigated whether the perceived popularity of political parties can lead to even more voters following this majority. However, empirical findings on this so-called political bandwagon effect are mixed. In the present paper, we integrate theories from political science and social psychology to explain these inconsistencies through social class as a potential moderating variable. Based on previous findings regarding consumer decisions, we hypothesized that bandwagon effects are greater among voters with lower social class. To investigate this hypothesis, we combined data from the German Longitudinal Election Study (GLES) Rolling Cross-Section 2021, which was collected over the 55 days before the 2021 German federal election, with the results of published preelection polls. Using separate multilevel models for each of the parties, we found no evidence for bandwagon effects. Only for the Social Democratic Party were poll results related to voting intentions assessed on the following day, suggesting that polls might have contributed to the party's electoral success. However, there was no evidence for a moderation of bandwagon effects by voters' social class. Accordingly, we could not resolve the mixed findings in this field of research. Our results point to important open questions in research on bandwagon effects in multiparty systems as well as on effects of social class in Germany.

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Wer springt auf den *Bandwagon* auf? Die Rolle des sozialen Status der Wählenden für Umfrageeffekte im Kontext der Bundestagswahl 2021

Zusammenfassung Ergebnisse von Meinungsumfragen sind ein wichtiger Bestandteil der politischen Berichterstattung vor Wahlen. Daher wird seit Langem untersucht, ob die aufgrund von Umfrageergebnissen wahrgenommene Popularität politischer Parteien dazu führen kann, dass sich Wählende der scheinbaren Mehrheit anschließen. Die empirischen Ergebnisse zu diesem sogenannten politischen Bandwagon-Effekt sind jedoch gemischt. Im vorliegenden Artikel haben wir Theorien aus der Politikwissenschaft und der Sozialpsychologie integriert, um diese Unstimmigkeiten durch den sozialen Status als mögliche moderierende Variable zu erklären. Auf der Grundlage früherer Erkenntnisse zu Konsumentscheidungen stellten wir die Hypothese auf, dass Bandwagon-Effekte bei Wählenden mit niedrigerem sozialem Status größer ausfallen. Zur Untersuchung dieser Hypothese kombinierten wir Daten der German Longitudinal Election Study (GLES) Rolling Cross-Section-Wahlkampfstudie 2021, die in den letzten 55 Tagen vor der Bundestagswahl 2021 durchgeführt wurde, mit Umfrageergebnissen, die in diesem Zeitraum veröffentlicht wurden. In separaten Mehrebenenmodellen für jede der Parteien zeigte sich keine Evidenz für Bandwagon-Effekte. Lediglich für die SPD standen die Umfrageergebnisse in Zusammenhang mit der am Folgetag berichteten Wahlabsicht, was darauf hindeutet, dass die Umfragen zum Wahlerfolg der Partei beigetragen haben könnten. Wir fanden jedoch keine Evidenz für eine Moderation der Bandwagon-Effekte durch den sozialen Status der Wählenden. Dementsprechend konnten wir die gemischten Ergebnisse in diesem Forschungsfeld nicht auflösen. Unsere Ergebnisse weisen auf wichtige offene Fragen in der Forschung zu Bandwagon-Effekten in Mehrparteiensystemen sowie zu Effekten des sozialen Status in Deutschland hin.

1 Introduction

In modern democracies and especially in times of elections, people constantly have the opportunity to get information from the mass media on others' political opinions and voting preferences. One of the most important sources of such information consists of published findings from public opinion polls (Moy and Rinke 2012). Over the past decades, polls have become an increasingly important part of the political coverage (Brettschneider 2008). For example, in the last 5 weeks before the German federal election in 2013, the proportion of people who reported to have paid attention to such polls rose drastically and reached approximately 70% just before the election (Partheymüller and Schäfer 2013). This trend is related to a pervasive tendency toward so-called horse-race journalism, which focuses more on

the question of who's ahead than on substantive issues during the election campaign (Genz et al. 2001). While the great presence of polls in the media has long been critically debated, it became especially controversial during the 2021 German federal election campaign when a polling institute reported projections in the preelection phase including data from postal voters on their already cast votes (Thiel 2021).

Different kinds of poll effects have been distinguished. For example, becoming aware of public opinion via polls can elicit *strategic voting* behavior (i.e., people vote for a party/candidate because of strategic reasons even though it is not their preferred choice) as well as the so-called *underdog effect* (i.e., people favor parties/candidates who are behind in polls) (Moy and Rinke 2012). Furthermore, it has been argued that the perceived popularity of political parties and candidates can result in the so-called *political bandwagon effect* (Moy and Rinke 2012). This refers to the phenomenon in which some people tend to follow the perceived majority and vote for candidates, parties, or political opinions that are ahead in the polls (Schmitt-Beck 2015). Thus, bandwagon effects can be understood as an instance of majority influence in the political context.

In the present research, we argue that voters' social class is a possible moderator variable of bandwagon effects. Recent findings from social psychology suggest that majority influence is stronger among individuals with lower (vs. higher) social class in other choice contexts (Na et al. 2016; Stephens et al. 2011). By transferring this finding to the political context, we investigated whether voters' social class moderates the effect of a majority party preference (as perceived via public poll results) on voters' own vote intention, i.e. the political bandwagon effect.

We examine this research question in the context of the 2021 German federal election because it provides an extraordinarily promising context to investigate poll effects for several reasons. First, this was the first federal election in the postwar history of Germany without the incumbent chancellor running. Due to this political change, preelection poll results were characterized by great dynamics before the 2021 election. This is a prerequisite for adequate statistical power to examine the existence of a bandwagon effect and voters' social class as its assumed boundary condition. For example, in August 2021 the Social Democratic Party (SPD) was ahead of the Christian Democratic Union (CDU) in poll results for the first time in almost 15 years (Grahn and Süßmann 2021). Second, the COVID-19 crisis has made existing social disparities especially salient. Contradicting its initially assumed role as a "great equalizer" (Cuomo 2020), studies suggest that the pandemic has instead increased existing social inequalities by affecting people of different social classes to a different extent (Bundeszentrale für politische Bildung 2021). Based on data from the German Longitudinal Election Study (GLES) Rolling Cross-Section 2021 (GLES 2022), the present research makes an important contribution to a) the controversy about polls as an integral part of the political news coverage and b) the profound understanding of consequences of social class differences.

2 Theoretical Argument, Literature Review, and Hypothesis

2.1 Majority Influence in the Political Context: The Political Bandwagon Effect

In the political context, voters do not only develop their own voting intention but also form an impression of others' preferences. Importantly, beliefs about the general electorate's party support are influenced by polls spread by the mass media and have the potential to influence individuals' voting preferences (e.g., Moy and Rinke 2012). Poll effects based on the tendency to follow a perceived majority opinion have often been investigated under the term bandwagon effect. It especially refers to the influence of preelection polls on individuals' voting preferences in the sense that support for the view presented as being favored by a majority of society increases (Barnfield 2020; Schmitt-Beck 2015). Thus, bandwagon effects can affect individuals' attitudes toward political issues, parties, and candidates as well as actual voting behavior (Moy and Rinke 2012). Thereby, polls constitute the most visible signal of majority support. A consequence of bandwagon effects is that the perceived public opinion can turn into a self-fulfilling prophecy (Schmitt-Beck 2015).

Different theoretical accounts have been used to explain why voters jump on the bandwagon (for an overview, see Hardmeier 2008). In the following, we will briefly highlight the most influential approaches. From a social psychological perspective, bandwagon effects have often been understood as a manifestation of *conformity*. In his seminal study, Asch (1956) found that individuals conform to the opinion of a majority of people surrounding them even when the majority position is clearly incorrect. Advancing these findings, studies showed that the perception that a majority of others evaluate something positively leads to individuals evaluating this attitude or object more positively, too (e.g., Erb et al. 1998). People thus follow a consensus heuristic that implies that what a majority is doing must be the preferable option (Erb and Bohner 2010).

Aside from psychological concepts used to explain the mechanisms of bandwagon effects, research from political science has long emphasized the role of so-called *impersonal influence* (Mutz 1998). This construct describes the effect of information about the beliefs of collectives of others who are not part of an individual's personal contacts. In this regard, bandwagon effects have long been tied to a so-called gratification mechanism that refers to voters switching to the "winning side" solely because of the expected gratification of belonging to the "winners" (Mutz 1998).

Even though many potential causal mechanisms and conceptualizations of majority influence have been discussed, there is still a lack of empirical evidence for a conclusive model of political bandwagon effects (Schmitt-Beck 2015). Indeed, it is conceivable that the concept of bandwagon effects is not inherently linked with one of the proposed mechanisms but that different mechanisms might be in play (Barnfield 2020).

Empirical research on bandwagon effects includes a variety of studies that differ in their design and political setting. However, there are two main aspects that can be used to categorize these studies (for an overview, see Barnfield 2020). First, bandwagon effects have been investigated with regard to two outcomes: the switch in vote choice from one alternative to another (conversion) and a decision to turn out

to vote (mobilization) (Barnfield 2020; Morton et al. 2015). Because most previous studies have investigated bandwagon effects on conversion, we will also focus on these effects when speaking of bandwagon effects.

Second, studies on bandwagon effects have differed in their independent variable—the aspect of opinion polls that influences voters' preferences. While there is some evidence for the effect of a rise of public support of a candidate's respective party from one time point to the second one (dynamic bandwagon effects; e.g., van der Meer et al. 2016), most research has focused on the (leading) position in poll results of one party in comparison to others at one point in time (static bandwagon effects; e.g., Schmitt-Beck 1996).

In addition to these conceptual differences, the political context plays an important role in investigations on bandwagon effects. The concept of leading in the polls is well applicable to first-past-the-post systems like that of the United States, and most evidence on bandwagon effects stems from presidential primaries in the United States (e.g., Callander 2007). But what does success/leading in the polls mean in the German multiparty context with proportional representation? Recent research suggests that the definition of success, or of being a "winner," in opinion polls is more ambiguous in multiparty contexts with proportional representation systems (cf. Barnfield 2020). Due to the common formation of coalition governments, "winning" an election is not limited to being the party with the largest vote share (Meffert et al. 2011). Recent research in proportional representation contexts has emphasized that there are several aspects that can lead to a party's being portrayed and perceived as a winner, e.g., exceeding expectations, getting the largest number of seats, overcoming the electoral threshold (Stolwijk et al. 2016), or being predicted with high certainty to be part of a government (Riambau 2018). Thus, both large and small parties might justifiably claim to be successful in their election campaigns (Hardmeier and Roth 2003). Accordingly, we investigated potential poll effects for all major German parties to be able to get a complete picture.

In the German context, there is first-hand evidence that interest in political media coverage a) influences voters' expectations regarding the election outcome and b) consequentially leads to voters choosing the party that was leading in the polls in the 1990 national election (Schmitt-Beck 1996). Similar results could be found for the 2005 parliamentary election in a study based on data from a rolling cross-section (RCS) study (Faas et al. 2008). However, a reanalysis of the GLES RCS data for the 2005 election with a different analysis approach[1] suggested that the polls had an influence only on voting turnout intention and coalition expectations but not on voting intentions for the different parties (Hoffmann and Klein 2013). Accordingly, we concluded that further investigations on poll effects in the German context were necessary.

Whereas previous research has explained the mixed empirical evidence for the political bandwagon effect through methodological issues and a lack of conceptual clarity (cf. Barnfield 2020), we argue that a third reason might play a role: Potential moderating variables of majority influence could influence the size of the political

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[1] The authors used a multilevel modeling approach, a different selection of published poll results, and a different time-lag between the publishing of polls and the survey data collection.

bandwagon effect. Importantly, recent social psychological findings suggest that a sociodemographic characteristic of individuals, namely their social class, is related to the tendency to follow a perceived majority. We, thus, focused on this variable as a potential moderator of bandwagon effects in the present research.

2.2 Social Class and Susceptibility to Social Influence

In the last decade, psychological perspectives on social class have been developed: a so-called social cognitive perspective (Kraus et al. 2012) and a cultural approach (Stephens et al. 2014). Whereas the first one focuses on the way different material resources can influence basic psychological tendencies, the second one is based on the notion that people's social class is an important determinant for the sociocultural contexts in which people spend most of their lives. Within these frameworks, objective components of social class (objective socioeconomic status [SES]) refer to a person's level of access to (material) resources and are often measured via one's educational attainment and financial means, as well as occupational prestige (Oakes and Rossi 2003). By contrast, subjective components of social status are defined as a person's perception of their relative standing in society, which is derived from the comparison of one's material wealth to those of others (e.g., Kraus et al. 2012, 2017). It is assumed that objective SES and subjective social status (SSS) constitute important factors of social class contexts that influence people's experiences of being from a certain social class background and refer to different aspects of social class (Adler et al. 2000; Kraus et al. 2012). Importantly, research from both theoretical approaches on social class shows that the material conditions in which people are raised and live influence a range of psychological and behavioral outcomes (Kraus et al. 2012; Manstead 2018).

First, people of lower and higher social class differ in their self-concept (Kraus et al. 2012; Manstead 2018). A self-concept is defined as a person's thoughts, beliefs, and feelings about the self as an object (Markus and Kitayama 1991, 2010). More concretely, there is first evidence that people of lower social class are more likely to develop an *interdependent* self (Grossmann and Varnum 2011). This means that they tend to focus on their self as embedded in social relationships, a focus that is often explained by their experience of constrained opportunities for making free life choices. In contrast, people of a higher social class are more likely to develop an *independent* self-concept (Kraus et al. 2012). This means that they tend to see themselves as separate, unique entities, and this tendency has often been explained by their larger freedom to make life decisions according to their own interests and desires.

Second, these social class differences in self-concepts are reflected in the way people make choices under social influence. Individuals from lower social classes are relatively more likely to make choices that promote similarity to and connection with others, whereas individuals from higher social classes are relatively more likely to make choices that produce uniqueness and differentiation from others (Na et al. 2016; Stephens et al. 2007, 2011). For example, it was found that participants with lower objective SES (as classified via their parents' educational attainment) more often chose the same product as an ostensible former participant and liked their

chosen product more when another person apparently made the same choice (vs. a different choice) (Stephens et al. 2007, studies 2 and 3). However, the choice of another person had no influence on the ratings of the chosen product for participants with higher objective SES.

Additionally, people of lower social class are more susceptible to a perceived majority preference when it comes to product choices (Na et al. 2016). It could be demonstrated that mainly participants of lower social class aligned their product choices with a majority's preference even when that choice contradicted their personal preferences (Na et al. 2016, study 1). Importantly, this effect was found using objective SES as well as SSS. First evidence suggests that these social class differences in the sensitivity to preferences of others are indeed mediated by their independent vs. interdependent self-concepts (Na et al. 2016, studies 2 and 3).

Thus, whereas majority influence has often been considered a well-established phenomenon, recent studies suggest that these effects cannot be found uniformly across all social classes. In the present research, we transfer these findings to the political context and, more concretely, to the political bandwagon effect.

2.3 Current Research: The Role of Social Class in Bandwagon Effects

Even though multiple studies on bandwagon effects have been conducted over the past decades, empirical evidence is mixed. One potential explanation for these inconsistencies might be the presence of moderator effects. While the political system has often been considered an important context variable, few studies so far have focused on voters' characteristics as moderators of the size of bandwagon effects. This, however, is important not only to better understand the relevance of bandwagon effects for voters' behavior but also to arrive at a better understanding of poll influences overall.

In the present research, we argue that recent social psychological findings on the relationship between people's social class and their tendency to follow a majority can offer new insights into boundary conditions of bandwagon effects. More concretely, people with lower objective SES and SSS have been found to be more likely to align their product choices with social preferences (Na et al. 2016; Stephens et al. 2011). Research suggests that this can be explained by an interdependent self-concept and a stronger focus on external factors when making decisions (Kraus et al. 2012; Na et al. 2016). However, the relationship between social class and the tendency to follow a majority has so far been investigated only in product choice settings.

Based on these findings, we argue that voters' social class also plays a role in the political context, specifically in the formation of voting intentions. First evidence that this transfer is possible stems from research on environmental concerns. It has been demonstrated that perceived descriptive social norms about pro-environmental behavior, i.e., the perception of how a majority of others behave, are more predictive of support for pro-environmental action among individuals with lower objective (vs. higher) SES (Eom et al. 2018).

Furthermore, there is empirical evidence that the political bandwagon effect is stronger among less educated voters (Schmitt-Beck 1996), whereas educational attainment can be seen as a proxy for objective SES. This result suggests that lower-

class voters correctly understand the information conveyed in polls but use it systematically differently than higher-class voters do. At the same time, this finding contradicts the potential alternative assumption that people of lower social class attach less weight to poll results when making their own voting decisions because of their lower level of generalized trust (Dahlhaus and Schlösser 2021; Kim et al. 2022). Based on these assumptions and results, we derived the hypothesis that the results of preelection polls more strongly influence voting intentions among people of lower (vs. higher) social class. We investigated this hypothesis in the context of the 2021 German parliamentary election. Our research can thereby produce further insights into bandwagon effects in multiparty systems and proportional representation systems. Because of the interdisciplinary approach and the use of suitable data from the 2021 GLES RCS (Faas et al. 2008; Hoffmann and Klein 2013), our research expands the literature on bandwagon effects and on social cognitive effects of social class in several ways: By clarifying a boundary condition of the political bandwagon effect, the present research contributes to understanding the size and relevance of effects of preelection polls on political attitudes and voting behavior. Thus, it has the potential to inform the debate on regulations on the publication of these polls. At the same time, our study goes beyond previous social psychological research on social class by investigating these effects in the election context. More concretely, our research offers new insights into the generalizability of social cognitive effects of social class, which have so far only been found in limited contexts. Additionally, it allows us to investigate boundary conditions of conformity, a central social psychological concept.

Combining both strands of research makes it possible to investigate the generalizability of the relationship between social class and the tendency to follow a majority. In the long run, our findings might help prepare the ground for developing methods to enhance the political information processing of people from different social-class backgrounds.

3 Data and Methods

We preregistered all our analyses on the open science framework. The preregistration can be accessed on osf.io (https://osf.io/g6r7v/).

3.1 Data

We examined the moderating effect of social class on the relationship between the perceived majority intention and individual voting intention based on data from the GLES RCS 2021.[2] The RCS is a large-scale, cross-sectional survey based on phone interviews. It comprises German-speaking respondents living in private households who have a landline telephone connection or a mobile number within the Federal Republic of Germany and were eligible to vote in the federal election of 2021 (GLES 2022). Adjustment weights were included based on sociodemographic characteristics

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[2] The dataset and its documentation are available via the GESIS data archive after one-time registration.

(i.e., gender, age, and education) as well as regional characteristics (e.g., municipal regions, east–west comparison; for detailed information on the survey design, see GLES 2022).

Specifically, we used data from the preelection survey collected before the German parliamentary election between August 2, 2021, and September 25, 2021. For each of the 55 field days, the goal was to realize 130 interviews. This resulted in a total sample size of 7068 respondents. To ensure that there were no missing data at the construct level, we listwise excluded all cases with missing data on the focal measures (i.e., educational attainment and current gainful employment status as indicators of objective social class, individual voting intention [and the actual majority's voting intention]).

The RCS data are highly suitable for our research question for three reasons. First, the RCS covers a relatively long time span before the German election and captures voting intentions. Second, the RCS comprises all relevant information for our research question: respondents' educational attainment and their current gainful employment status as proxy for social class, respondents' voting intention, and respondents' perception of poll results in the previous week, i.e. the perception of a majority's voting intention. Third, the RCS includes data from a random sample of the population described above on each field day (GLES 2022).

To examine the potential influences of poll results (i.e., the current majority's voting intention) on individual voting intentions, we combined the RCS data with results of published preelection polls (Blais et al. 2006; Faas et al. 2008). This procedure made it possible to investigate influences of published poll results on voting intentions on a daily basis over the last 8 weeks of the election campaign before the 2021 German federal election (Faas et al. 2008). We used data from the eight leading polling institutes in Germany (in alphabetical order): Allensbach, Forsa, Forschungsgruppe Wahlen, GMS, Infratest dimap, INSA, Kantar Emnid, and Yougov. The data were obtained from Wahlrecht.de (2021).[3] We matched each field day's RCS data with the results of preelection polls published 1 day before the RCS field day for each of the six political parties currently represented in the German Bundestag. Because some polls were published in the evening, which could result in some respondents not having the chance to see these polls, a lag of 1 day was chosen. In the event that no new polls were published on a particular day, we matched the RCS data with the most recently published poll results. If results from two or more polling firms were published on the same day, we used the average of these results.

In Fig. 1, the assumed main effect of poll results on voting intentions is displayed as a directed acyclic graph (see Panel a). Even though we had no specific hypotheses about the main effect of social class on voting intentions, we have displayed this path in the model for the sake of completeness. One could argue that our study design only allows examination of correlations. Potentially, unobserved confounders such as external events during the investigated time span could have influenced poll results and the voting intentions measured in the RCS data. Nevertheless, this appears to be unlikely for several reasons. First, the data collection of the polling institutes

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[3] For each polling institute, data were manually assembled into a Microsoft Excel sheet for processing in R.

a

Social Class

Poll Result

→ Voting intention

b

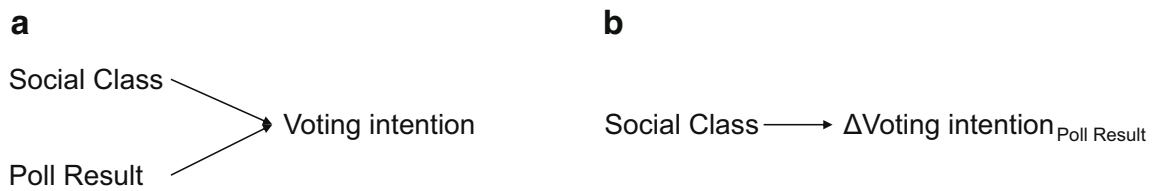Social Class ⟶ ΔVoting intention$_{Poll\ Result}$

Fig. 1 **a** Directed acyclic graph (DAG) for the main effects of social class and poll result on voting intention. **b** Interaction DAG (IDAG, Nilsson et al. 2021) for the hypothesized moderation effect. This states that social class influences the effect of poll results on voting intentions as measured in the 2021 rolling cross-section study

took place a few days before the assessment of the RCS data. Second, each polling institute collected the poll data over a different number of days and published the data one or several days after data collection. Thus, an external event that might have influenced the poll results would have needed to exert an influence over several days. Even if this were the case, other events that happened temporally closer to the RCS data collection would have been more salient for the RCS respondents and thus would have overshadowed the effect of the first event on voting intention. Accordingly, we concluded that it would have been rather unlikely for an external event to have caused both short-term fluctuations in the respective poll result and short-term fluctuations in the matched RCS data.

Furthermore, the main interest of this paper is to investigate whether the effect of poll results on voting intentions was moderated by social class (Fig. 1b). Inferences regarding this moderation are not necessarily affected by an external event that confounds the relationship between poll results and voting intentions. Instead, a confounder would have had to influence both social class and the effect of poll results on voting intentions at the same time. We argue that such a confounder is unlikely because voters' social class is rather stable over the investigated time span and varies mainly between, rather than within, respondents (cf. OECD 2018).

3.2 Variables

The following variables from the 2021 GLES RCS were used:

Individual Voting Intention Individuals' voting intention was assessed by the single item: "Which party will you vote for in the federal election?" Respondents were instructed to name one political party to which they would give the second vote (i.e., the vote that determines the proportions by which the political parties are represented in the German parliament). The individual voting intention was recoded in dummy-variables for the six political parties currently represented in the German Bundestag (CDU/Christian Social Union [CSU], SPD, Alternative for Germany [AfD], Free Democratic Party [FDP], the Left, Alliance 90/the Greens). Thereby, we treated the three separate answer options "CDU/CSU," "CDU," and "CSU" as a joint category. The reference category was defined as the voting intention for another political party or respondents who were still undecided, who would not cast a vote, or who would cast an invalid vote.

Objective Socioeconomic Status   We used two variables assessed in the RCS to compute a composite score of objective SES:

We used respondents' highest level of general education as one indicator for objective social class, as we assumed that an individual's socioeconomic position was (at least partly) given by their educational attainment. To ensure that each level of educational attainment was equally represented, we condensed the seven answer categories of the RCS item into three levels of educational attainment based on the sampling weights in the RCS: *low* (1, 2), *medium* (3, 7), *high* (4, 5). Responses indicating "other school-leaving certificate" (code 6) were coded as missing values.

As a second indicator of objective SES, we used respondents' current gainful employment status. Respondents indicated whether they worked full time, part time, or short time; were in vocational training/studies; or did not work in a paid job at all. We condensed the five answer categories into three levels of employment: full-time (1), part-time/short-time (2, 3), and little to no gainful employment (4, 5).

Following the procedure used in previous studies on social class (e.g., Kraus and Keltner 2009), we coded and standardized educational attainment (0 for low education, 1 for medium education, and 2 for high education) and current gainful employment status (0 for little gainful employment, 1 for part-time/short-time gainful employment, and 2 for full-time gainful employment) and created a single index of objective social class by computing a sum score.

Subjective Social Status   Respondents' SSS was assessed with a single item.[4] They were asked to indicate where they thought they stood in relation to other people in Germany on a ladder from 1 to 11.

Perception of the Majority's Voting Intention   The perception of the majority's voting intention was assessed by a single item. Respondents were asked, "Did you read or see any results of current opinion polls on the federal election in the last week?" The two response options *yes* (1) and *no* (0) were dummy-coded, with *no* as the reference category.[5]

We included the following variables assessed in the 2021 RCS as control variables:

Interest in Politics   Interest in politics was assessed by the single item, "Quite generally, how interested are you in politics?" The response options ranged from 1 (*very interested*) to 5 (*not at all interested*).

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[4] The item was "Please imagine a ladder with 11 rungs to show where people in Germany stand. At the top—on rung 11—are the people with the most money, the highest education and the best jobs. At the bottom—on rung 1—are those with the least money, the lowest education and the worst jobs or no job. Where would you place yourself on the ladder? Please tell me on which rung—from 1 to 11—you think you stand in relation to other people in Germany in your current phase of life." Unlike the other variables used, SSS was assessed in the RCS postelection survey. Approximately 63% of the respondents from the preelection survey also participated in the postelection survey.

[5] This measure had some limitations. It did not allow us to draw further inferences on the source of the poll or the time point within the last week when respondents had seen the poll(s). Furthermore, respondents might have misremembered the poll results or exactly when they saw the poll.

Interest in the Current Election Campaign   General interest in the current election campaign was assessed by the single item, "And how interested are you in particular in this federal election campaign?" The response options ranged from 1 (*very interested*) to 5 (*not at all interested*).

Party Identification   Respondents' party identification was assessed by the single item, "In Germany, many people lean toward a particular political party for a long time, although occasionally they vote for another party. How about you, do you lean toward a particular political party?" The response options included the six political parties currently represented in the German Bundestag (CDU/CSU, SPD, AfD, FDP, the Left, Alliance 90/the Greens). We treated the answer options "CDU/CSU," "CDU," and "CSU" as a joint category. For each of the six parties, we created a dummy variable displaying whether a person leaned toward this party (1) or leaned toward another party/did not lean toward any party/did not know (0).

Issue Orientation   Respondents were asked to think about the current political situation and to indicate what they thought the most important political problem in Germany currently was. After naming the perceived most important political problem, respondents were asked to indicate which party they thought would be best able to handle this problem. The response options included the six political parties currently represented in the German Bundestag (CDU/CSU, SPD, AfD, FDP, the Left, Alliance 90/the Greens). We treated the answer options "CDU/CSU," "CDU," and "CSU" as one category. For each of the six parties, we created a dummy variable indicating whether the respective party was named (1) or whether the party was not named/respondent answered that all parties were equally good (0).

Candidate Orientation   Respondents were asked how they perceived some of the leading politicians from the six parties currently represented in the German Bundestag (A. Laschet, A. Baerbock, O. Scholz, T. Chrupalla, A. Weidel, C. Lindner, J. Wissler, D. Bartsch, A. Merkel). The response options ranged from –5 (*I do not think much of the politician at all*) to 5 (*I think a great deal of the politician*).

Gender   Gender was assessed by three categories: *male, female*, and *nonbinary*. Because we expected the sample size to be too small to lead to meaningful results, we excluded respondents indicating a nonbinary gender from the respective analyses. We dummy-coded the variable (0 = *male*; 1 = *female*) with male as the reference category.

Age   Based on the self-reported year of birth, we computed the age of the participants in years (ranging from 18 to 90 years and older).

As explained above, the RCS data were matched with external data, namely the results of polls published over the course of the election campaign (Blais et al. 2006; Faas et al. 2008; Hoffmann and Klein 2013).

Current Majority's Voting Intention   The current majority's voting intention (CMVI) was adopted from the results of the so-called Sunday question. In Ger-

many, voting intentions are typically assessed by asking respondents what party they would choose if an election were held "next Sunday."[6] The published poll results are a projection of the voting intentions of the German electorate for the six political parties currently represented in the German Bundestag. We generated a variable for each of the six parties that indicated the proportion of votes this party was projected to receive. Consequently, these variables only varied between field days (level 2).

3.3 Data Exclusion and Missing Data

We excluded participants whose postal codes indicated that they cast their vote in the Saarland because not all of the six parties that were currently represented in the Bundestag were eligible with the second vote there. Specifically, because of a formal error, the state list of the party Alliance 90/the Greens was not admitted for election in the Saarland, which means that voters could not cast their second vote for this party. Technically, this was also the case for the CDU in Bavaria and for the CSU in all federal states but Bavaria; however, due to the close cooperation between these two parties, we treated them as one in our analyses.

We did not impute incomplete or missing data and instead used listwise deletion in our analyses. Furthermore, we did not consider statistical outliers to pose a problem in our analyses because each of the variables we used had only a few answer categories. By implication, extreme answer patterns that would significantly distort our results were unlikely.

3.4 Sampling Weights

Since we were mainly concerned with testing our hypothesis, which had to be true in any sample of participants, we did not plan to include any sample weights.

4 Analysis Plan

4.1 Statistical Models, Robustness Testing, and Model Nonconvergence

To test our hypothesis, we used multilevel logistic regressions, as the RCS survey includes data from different respondents every day in a representative cross-sectional design. Consequently, the respondents were nested in different field days. In our planned analysis, we modeled respondents as level 1 units and field days as level 2 units.

The focus of our research was on the cross-level interaction between CMVI (level 2) and social class (level 1) on voting intention. Following the recommendation by Enders and Tofighi (2007), we first centered all level 1 predictors (i.e., all

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[6] The published poll results, however, are not raw marginals. The polling institutes use specific procedures to transform the raw data into distributions that look like plausible election results. However, these procedures are not revealed to the public (Wüst 2003).

variables aside from CMVI) within field days (group-mean centering).[7] This made a meaningful interpretation of the cross-level interaction effect possible (Enders and Tofighi 2007). The CMVI as level 2 predictor was grand-mean centered. After centering, we z-standardized all predictors. This yielded standardized point estimates of our regression coefficients akin to those obtained through standardization in ordinary least squares regression (Snijders and Bosker 2012).

In accordance with Barr et al. (2013), we followed recommendations regarding the model complexity. We included random slopes for all predictors on level 1 and used an unstructured covariance matrix. In case the models did not converge, we first ran them with a different optimizer, which has been used in a previous version of the lme4 R package (Bates et al. 2015) ("bobyqa"). If this did not solve the problem, we simplified the model complexity by omitting the random slopes for the covariates.

The outcome, voting intention, was operationalized through a dummy variable for each of the six parties. For each party, we conducted a separate multilevel model with maximum likelihood estimates and the respective voting intention as outcome. Since each of the dependent variables was binary, the models included a logit link function. We conducted our analyses in R, using the lme4 package and lmerTest (Kuznetsova et al. 2017).

For the model estimation process, we used a multistep approach. In the first step, we estimated an intercept-only model for each party, which yielded the intraclass correlation coefficient (ICC). For each model, the ICC indicated the proportion of variance in our outcomes that was due to variation between field days (level 2 variation) (Hox et al. 2010). Our hypothesis was based on the assumption that there was variance in voting intentions between field days (which could be traced back to changes in CMVI). If the ICC reached statistical significance, we would conclude that the individual voting intention systematically varied between field days.[8]

In the second step, we estimated a model for each of the six parties in which we included CMVI as a level 2 predictor and the index of objective SES as level 1 predictor. Furthermore, we included the cross-level interaction between the CMVI (level 2) and objective social class (level 1). We expected the voting intentions of individuals to be affected by the poll results, especially for individuals of a lower social class compared with individuals of a higher social class. Thus, we expected a significant cross-level interaction as support for our hypothesis.

In a third step, we tested whether the results were robust by including the two indicators of objective SES separately instead of using the composite score. More concretely, we conducted the same analysis as outlined above but included educational attainment instead of the composite score of objective SES as predictor. For this purpose, educational attainment was contrast coded (–1 for low education, 0 for medium education, and 1 for high education). Additionally, we conducted the anal-

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[7] In this case, group-mean centering means that respondents' personal scores were centered around the mean of the respondents of the respective field day.

[8] If this was not the case, we would still compute the further planned analyses, as level 2 variation could be suppressed by level 1 predictors and therefore increased once level 1 predictors were introduced into the model (cf. Hoffmann and Klein 2013).

ysis including only gainful employment status as predictor instead of the composite score of objective SES as predictor. This variable was contrast coded (–1 for little to no gainful employment, 0 for part-time/short-time gainful employment, and 1 for full-time gainful employment).

In a fourth step, we tested the robustness of the results regarding the addition of relevant covariates. For the selection of covariates, we followed previous studies on bandwagon effects in Germany (Faas et al. 2008; Hoffmann and Klein 2013). Thus, we included standard primarily sociodemographic controls (age, gender, interest in the campaign, general interest in politics) as well as standard predictors of voting behavior in the Michigan model[9] (cf. Campbell et al. 1960), which included party identification, candidate orientation and issue orientation. We again estimated a model for each of the six parties, but in addition to the variables we added in the second step, we also included these covariates on level 1.

Additional robustness checks were conducted to investigate the assumed causality direction. More concretely, we computed the same models as outlined above but used voting intentions from the day before the polls were published ($t-1$) instead of voting intentions from the day after the polls were published ($t+1$) as outcome. Based on the standardized coefficients for the main effect of poll results on voting intentions, we computed a new binary variable. This indicated the number of times that the effect of poll results on voting intentions at $t+1$ was larger than the effect on voting intentions at $t-1$. We conducted a binomial test to investigate whether the effect on $t+1$ was significantly more often larger than the effect on $t-1$. If this was the case, we interpreted the result as support for the assumed causality direction.[10] Additionally, we investigated the interaction effect between poll results and objective social class on RCS voting intentions at $t-1$ and at $t+1$ following the same procedure outlined above. We expected that this interaction effect would more often be larger when the polls were published before (vs. after) the RCS voting intention had been assessed.

As a final robustness check, we included the perception of the CMVI as additional predictor on level 1 in the main analysis, as we assumed that polls could affect voting intentions only when individuals took note of them. We also included all possible two-way interactions and the three-way interaction between objective social class, CMVI, and perception of the CMVI. We assumed that the voting intentions of individuals would be more strongly affected by the poll results they reported to have seen, especially for respondents of lower objective social class.[11]

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[9] The Michigan model is a dominant model for the explanation and prediction of voting behavior. Indeed, Hoffmann and Klein's (2013) analyses based on the 2009 RCS data show that party identification, candidate orientation, and issue orientation were significant predictors of voting intention.

[10] We argue that such a test constitutes a conservative check of the expected poll effects, as the RCS voting intention on $t-1$ was assessed with a smaller temporal distance to the data collection by the polling institutes compared with the RCS voting intention on $t+1$. This smaller temporal distance might have increased their correlation.

[11] However, because of power concerns and the previously mentioned limitations of the variable capturing poll perception, we evaluated our hypothesis based on the two-way interaction between objective social class and CMVI.

4.2 Effect Size, Statistical Power, and Inference Criteria

Since all of the models were nested, we used likelihood ratio tests for model comparisons. We considered $p < 0.05$ as statistically significant. As our hypotheses were directional, we used one-sided tests to assess the significance of the corresponding regression coefficients. No corrections were made for multiple tests. We expected to be able to use data from an average of 130 respondents per field day for 55 field days. Previous studies on the role of social class in the tendency to follow a perceived majority found medium to large effect sizes (e.g., Na et al. 2016). However, our study differs from these studies in several aspects. Most importantly, previous research was focused on the context of product choice, whereas the aim of the present research was to transfer these findings to the political context.[12] Thus, we anticipated a small effect size for the hypothesized cross-level interaction effect between social class and poll results on voting intentions. A power analysis using an online tool for power analysis for multilevel logistic regression (Astivia et al. 2019) that is based on the R packages lme4, simglm (LeBeau 2021) and paramtest (Hugh 2017) resulted in an estimated power > 0.90 to detect a cross-level interaction effect, with beta $= 0.1$ for small level 1 and level 2 effects (each with beta $= 0.1$) and a slope variance of 0.09.[13]

4.3 Exploratory Analyses

The results of the following exploratory analyses are presented in the online appendix. For exploratory purposes, we conducted the same analyses as presented above but used a time lag of zero days and a time lag of 2 days when matching the published poll results with RCS data. Additionally, we conducted our main analyses as specified above using subjective social class as continuous predictor on level 1. Furthermore, we considered to conduct our main analyses as specified above using transformation and adjustment weights provided with the dataset.

To get a better understanding of psychological correlates of social class in the German context, we conducted a further explorative analysis. This could provide insights into mechanisms of the hypothesized moderation of bandwagon effects via social class. The social cognitive model of social class (Kraus et al. 2012) proposes that social class is related to different psychological tendencies when perceiving one's social environment. Therefore, we explored whether objective/subjective social class were correlated with the tendency to "focus on the whole and less on particular details" as measured in the RCS postelection survey.

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[12] Additionally, these other studies were conducted in the United States, had smaller sample sizes, and used an experimental manipulation of the perceived majority opinion.

[13] As the tool did not permit us to conduct 1000 replications in one simulation, we ran the same simulation ten times with 100 replications each and computed the mean value of the power for the cross-level interaction effect, as recommended by Astivia et al. (2019).

5 Results

5.1 Main Analyses

After applying the preregistered exclusion criteria, the analysis dataset consisted of 5291 respondents nested in field days. This dataset was matched with poll results (CMVI) using a time lag of 1 day for the main analyses.

To assess the impact of the nesting of the data, we specified intercept-only models for each party and computed ICCs (see Table 1). For CDU/CSU, the Left, and AfD, the ICCs were zero, indicating that there was negligible variation in the intention to vote for these parties across field days. For the remaining parties, ICCs were close to zero (SPD: ICC = 0.005; FDP: ICC = 0.024; Alliance 90/the Greens: ICC = 0.002). Although the variation across field days was rather small, we could not preclude the existence of variation in the effect of objective SES as predictor on level 1 (see Barr et al. 2013). Thus, we estimated multilevel models with objective SES, CMVI, and their cross-level interaction as predictors of voting intention for each of the six parties.

For the SPD, CMVI was positively associated with voting intention[14]: $\beta = 0.102$, $SE = 0.041$, $OR = 1.107$, 95% CI [1.022, 1.201], $p = 0.006$[15]. The hypothesized interaction effect was, however, not significant: $\beta = 0.012$, $SE = 0.037$, $OR = 1.038$, 95% CI [0.940, 1.089], $p = 0.376$. For the other parties, neither the CMVI nor the interaction effect with individuals' objective SES reached significance.[16] The complete results are displayed in Table 2.

5.2 Robustness Checks

As indicated by preregistration, we conducted further analyses to assess the robustness of our results. First, we varied our operationalization of objective SES by evaluating gainful employment and educational attainment separately instead of using a combined index. We found that our results did not change (see online attachment, Tables A1 and A2).[17] The CMVI was not related to voting intention (except in the case of the SPD), nor did gainful employment moderate this relationship. However, we found that education moderated the relationship between CMVI and measured voting intention (lag 1) for Alliance 90/the Greens such that the relationship was stronger among less educated people. Interestingly, the relationships of employment and education with measured voting intention differed in intensity and went in opposite directions in the case of the Left and the AfD. This could indicate

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[14] A model including CMVI as single predictor showed a similar result for this main effect: $\beta = 0.096$, $SE = 0.039$, $OR = 1.100$, 95% CI [1.019, 1.188], $p = 0.007$.

[15] All presented p-values are one-tailed (as preregistered) unless stated otherwise.

[16] For these parties, models without objective SES CMVI also had no significant main effect on voting intention, all $p > 0.05$.

[17] Since our main analyses produced insignificant results regarding the hypothesized interaction effect, we included the detailed results in the online supplement. These have also been made available on osf.io (https://osf.io/g6r7v/).

Table 1 Results from all intercept-only models and intraclass correlation coefficients for voting intention

	CDU/CSU		SPD		FDP		Alliance 90/the Greens		The Left		AfD	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Intercept	−1.775 ***	0.039	−1.538 ***	0.041	−2.714 ***	0.071	−1.540 ***	0.038	−3.021 ***	0.065	−3.157 ***	0.069
ICC	0.000		0.005		0.024		0.002		0.000		0.000	

N (level 2) = 55, N (level 1) = 5291 for each model

AfD Alternative for Germany, *CDU* Christian Democratic Union, *CSU* Christian Social Union, *Est.* estimate, *FDP* Free Democratic Party, *ICC* intraclass correlation coefficient, *SE* standard error, *SPD* Social Democratic Party

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 2 Results from all multilevel logistic regression models predicting voting intention for the political parties represented in the German Bundestag

	CDU/CSU			SPD			FDP			Alliance 90/the Greens			The Left		AfD		
	β		SE	β		SE	β		SE	β		SE	β	SE	β		SE
Intercept	−1.789	***	0.040	−1.581	***	0.041	−2.749	***	0.074	−1.583	***	0.04	−3.027	0.066	−3.161	***	0.074
CMVI	0.037		0.039	0.102	**	0.041	0.021		0.071	0.038		0.039	0.094	0.065	−0.067		0.069
SES	−0.174	***	0.040	−0.343	***	0.037	0.276	***	0.066	0.356	***	0.039	−0.052	0.065	−0.010		0.076
CMVI×SES	−0.038		0.040	0.012		0.037	0.058		0.063	−0.059		0.039	−0.041	0.064	0.048		0.070

N (level 2) = 55, N (level 1) = 5291 for each model. The reported p-values for CMVI and the interaction are one-sided due to the directed hypotheses

AfD Alternative for Germany, *CDU* Christian Democratic Union, *CSU* Christian Social Union, *CMVI* current majority's voting intention, *FDP* Free Democratic Party, *SE* standard error, *SES* objective socioeconomic status, *SPD* Social Democratic Party

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

that the index for objective SES based on employment and education had a reduced reliability.

Second, we included covariates (gender, age, general interest in politics, campaign interest, party identification, issue orientation, and candidate orientation) in the main analyses. With the exception of objective SES, we again found no significant changes to our main results (see Table A3).

To investigate the direction of the proposed moderated effect, we matched the RCS data with polls published a day after the respective field day (see Table A4). For half of the parties (SPD, FDP, the Left), the relationship of CMVI and voting intentions from the day after the polls were published (main analyses; expected temporal direction) was stronger than the relationship of CMVI and voting intentions from the day before the polls were published. The binomial test did not reach significance: P (effect in expected temporal direction > effect in contrary temporal direction) = 0.500, $p = 0.500$. For the interaction effects, the pattern was similar; the standardized coefficients were larger for the expected temporal direction for three of the parties (SPD, FDP, AfD). Again, this was not significant: P (effect in expected temporal direction > effect in contrary temporal direction) = 0.500, $p = 0.500$. Thus, these results did not sufficiently support the assumed direction of effects. We will further discuss the implications of this finding below.

When including the reported perception of CMVI as well as all possible two-way interactions and the three-way interaction between objective SES, CMVI, and CMVI perception, the pattern of results did not change for the relationship of CMVI and voting intention or its interaction with objective SES (see Table A5). Additionally, the three-way interaction did not reach significance for any of the parties. This indicates that voting intentions were not related more strongly with the perceived CMVI for respondents with lower objective SES. However, supporting the notion of a poll effect for the SPD, we found a significant interaction between CMVI and CMVI perception: $\beta = 0.091$, $SE = 0.041$, $OR = 1.095$, 95% CI [1.011, 1.184], $p = 0.014$. This result suggests that the positive relationship between CMVI and voting intention for the SPD was greater when polls were perceived earlier than the respective field day.

5.3 Exploratory Results

Instead of a time lag of 1 day, other time lags can be used to investigate bandwagon effects. Thus, we first computed the main analyses again for a time lag of zero days, which implies investigating the effects of poll results published on the same day as the collection of the matched RCS data. Paralleling the results for a time lag of 1 day, the relationship of poll results and voting intention remained significant for the SPD: $\beta = 0.109$, $SE = 0.041$, $OR = 1.115$, 95% CI [1.029, 1.209], $p = 0.004$. We did not find a significant interaction between objective SES and CMVI for any of the parties.

Additionally, we computed the same analyses for a time lag of 2 days, which means that we investigated the effects of CMVI published 2 days before the assessed voting intention. Again, CMVI was significantly associated with voting intention for the SPD—$\beta = 0.105$, $SE = 0.040$, $OR = 1.111$, 95% CI [1.025, 1.203],

$p = 0.005$—whereas the interaction between objective SES and CMVI did not reach significance for any of the parties. The complete results for the analyses using a time lag of zero and two are presented in the online supplement (Table A6).[18]

Investigating SSS instead of objective SES led to the same pattern of results (see Table A7). The CMVI and voting intention remained significantly associated for the SPD—$\beta = 0.082$, $SE = 0.046$, $OR = 1.085$, 95% CI [0.992, 1.189], $p = 0.038$—whereas the interaction between SSS and CMVI did not reach significance for any of the parties.

We further explored whether objective SES and SSS were related to the tendency to perceive the world in a holistic way, or whether the focus on specific details as social cognitive models of social class postulate related differences in psychological tendencies. Interestingly, we found that people with a high objective SES tended to perceive the world in a more holistic way than people with low objective SES—$r(3378) = 0.086$, p (two-tailed) < 0.001—whereas SSS had a negative nonsignificant correlation with this psychological tendency: $r(3342) = -0.027$, p (two-tailed) $= 0.119$.

5.4 Nonregistered Analyses

To further examine the validity of our conceptualization of objective SES, we computed Spearman's rank correlation between educational attainment and gainful employment. The indicators merely had a small positive correlation—$r_s(5289) = 0.150$, $p < 0.001$—which suggests a low reliability of the score for objective SES. Additionally, we computed the correlation between objective SES and SSS and found a small correlation: $r(3372) = 0.240$, $p < 0.001$. This result indicates that people's perceived standing in society was determined by more factors than their objective living conditions.

6 Discussion and Concluding Remarks

Political bandwagon effects have received considerable attention in past research. Previous findings are, however, decidedly inconclusive (Barnfield 2020). The present study improves on prior research in several aspects. First, we integrated theories from political science and social psychology to introduce social class as a possible moderator of bandwagon effects. Second, we investigated this hypothesized moderation in a multiparty system. Third, we relied on high-quality, representative RCS data preceding an exceptionally strongly contested election in Germany. Fourth, we employed a rigorous methodological approach based on adequate modeling of the time-dependency of the data as well as preregistered analyses.

We found only limited evidence for bandwagon effects. Merely for the SPD, a higher vote share in polls (i.e., CMVI) was associated with a higher voting intention 1 day after polls were published. Supporting the notion of a bandwagon effect,

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[18] As the interaction of interest did not reach significance in any of the analyses, we abstained from conducting an additional analysis with weights.

this association was stronger for voters reporting to have seen polls previously. Contradicting our hypothesis, there was no evidence for moderation of the association by voters' objective SES for any of the parties. In contrast to previous findings on consumer decisions, social class was not related to the tendency to follow a perceived majority regarding voting intentions. Exploratory analyses with different time lags or with SSS as indicator of social class resulted in the same pattern of results. However, for Alliance 90/the Greens we found first evidence that the association between CMVI and voting intention was greater for voters with less educational attainment.

6.1 Limitations and Future Research

Although we did not find moderation of the association between CMVI and voting intentions by social class, our results provide important insights into bandwagon effects in multiparty systems as well as social class effects in the German context. Thus, our results can serve as guidance for fruitful future research in this field.

Looking at the results, it becomes clear that voting intentions as measured in the RCS data showed little variation across field days. From a statistical perspective, this makes it unlikely to find potential bandwagon effects. This finding is surprising because the 2021 election was characterized by a dynamic election campaign (e.g., Grahn and Süßmann 2021) and comparably volatile poll results. The dynamic of the poll results was, however, not reflected in the pattern of voting intentions from the RCS data (except for the SPD). There are methodological aspects that should be taken into account to understand this result.

Specifically, there were differences in the way the voting intention was assessed in the RCS data and the way the CMVI had been presented by the polling institutes. Importantly, polls did not report on the share of people who did not plan to cast a vote. We, however, included these participants in our assessment of voting intentions because bandwagon effects could potentially also affect them. Additionally, most polling institutes published so-called projected vote shares instead of raw data. Both aspects could have decreased the association between CMVI and measured voting intentions.

Furthermore, the absence of bandwagon effects might be linked with the investigated time period. Previous social psychological research has shown that majority influence is especially strong when people feel a high level of uncertainty (Deutsch and Gerard 1955). Because we investigated poll effects briefly before the election, most respondents had established their preferences already, which might have reduced the tendency to follow others' opinions.

To summarize, our results indicate that even though the investigated election apparently provided optimal circumstances, bandwagon effects did not occur for the majority of parties in Germany. This implies that most voters did not conform to impersonal social influences exerted by poll results but arrived at their voting intention based on factors such as party identification, issue orientation, and candidate orientation (see Table A3). For these parties, public opinion did not impinge on itself.

Nevertheless, we found a positive relationship between the CMVI and measured voting intentions for the SPD. Looking at the pattern of the published poll results gives further insights (see online attachment, Figs. A1–A6): The SPD was the party with the largest increase in projected vote share during the 55 days before the election across the different polling institutes. Additionally, the party was leading the polls for approximately the last month before the election. During the investigated time span, poll results for the FDP, the Left, and AfD were relatively stable, whereas Alliance 90/the Greens and especially the CDU/CSU lost ground continuously. Accordingly, a bandwagon effect, which is defined as voters switching to a party perceived as the majority choice (Barnfield 2020; Schmitt-Beck 2015), is most plausible for the SPD.[19] This result is in line with the findings by Faas et al. (2008), who identified a bandwagon effect for the SPD in the German federal election of 2005. Importantly, falling poll figures did not accelerate the downward trend for Alliance 90/the Greens or the CDU/CSU.

At the same time, the results provide insights into the factors determining the perception of a "winner" in poll results, which has been considered central to bandwagon effects. In the beginning of the investigated time span, the SPD probably did not appear to be a winner to most voters, as the CDU/CSU was leading the polls. This possibly changed when the poll results for the SPD started to rise and continued until the party took the lead in polls and remained at this position until the election. Thus, either the large increase in poll results over time or the leading position in polls (or a combination of both) might have elicited the perception of the SPD as the winner, which potentially motivated voters to switch to the winning side (Meffert et al. 2011; van der Meer et al. 2016). Because previous conceptualizations of a perceived winner were developed for two-party systems, they cannot be adequately applied to multiparty systems. Future research should further distinguish the characteristics of poll results eliciting bandwagon effects in multiparty systems.

However, we did not find evidence for the assumed causality direction of a bandwagon effect for the SPD, which limits the interpretability of the association between CMVI and voting intention. More concretely, voting intention was also associated with poll results published the day after the respective field day for the SPD (see online appendix, Table A4). This finding may indicate that there is no bandwagon effect and that both measures simply reflect, for example, general swings of public opinion. However, it can also be explained by the fact that CMVI and measured voting intention generally reflect the same underlying core construct. Additionally, polls from the day later are based on data that were collected a few days earlier—that is, temporally close to the respective RCS field day. Thus, the found association does not necessarily prove that there is no (causal) bandwagon effect.

Furthermore, in the context of cross-lagged panel designs, researchers have developed the concept of "causal dominance" to interpret similar patterns of associations (e.g., Schuurman et al. 2016). Accordingly, the strongest association between variables measured at different measurement occasions is thought to be the "causally dominant" one, as it exerts the most important causal effect and drives the mecha-

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[19] Additionally, it should be noted that poll effects are less likely to be detected with only little variation in poll results across field days.

nism. Following this argument, our goal was to identify which of the paths between poll results and voting intentions was the "causally dominant" (i.e., the larger) one. Our robustness check showed that the association between CMVI and voting intention at $t+1$ was not significantly larger than the association with voting intention at $t-1$. However, this test was quite underpowered, as it was based on only six cases (i.e., the parties), which prevented us from identifying the causally dominant path. Future studies should further tap into the causality direction of bandwagon effects by using longitudinal data with multiple measurement occasions. This would allow for the implementation of complete cross-lagged panel designs and the test of causal dominance for poll effects on voting intentions one or more days later.

Regarding our proposed moderation, we found that the CMVI was associated with voting intentions of voters across the social class spectrum equally. There are different potential explanations for the lack of moderation of bandwagon effects by social class. First, social class effects on majority influence might depend on the national context. So far, most evidence for effects of social class on majority influence comes from the United States (e.g., Na et al. 2016; Stephens et al. 2011, 2007). Compared with the United States, Germany is characterized by a lower income inequality (OECD 2022). Assuming that inequality is related to the salience of social class differences (Schneider 2019), social class might have weaker effects on individuals' self-concepts and, consequently, the tendency to follow a perceived majority in Germany compared with the United States. To ensure the generalizability of social class effects, future research could benefit from further cross-national replications of social class effects on majority influence.

Second, the type of decision might play a role in the investigated effects. Whereas people of lower social class show a greater tendency to follow the majority in consumer choices (e.g., Na et al. 2016; Stephens et al. 2011, 2007), this might not be transferable to voting decisions. Possibly, lower-class voters do not follow a perceived majority in the voting context because they perceive the majority of voters (of a potentially higher social class) as less indicative of their own political interests.

Third, the operationalization of objective SES did not include income level, which has been defined as a relevant indicator of social class alongside educational attainment (e.g., Kraus et al. 2012). Because of a lack of a more suitable measure of income in the RCS study, we used gainful employment status as a proxy. There are, however, some indications that this variable did not adequately capture income level. For example, employment status was only weakly correlated with educational attainment, as a relatively large number of people worked full time and had a low educational level. Additionally, it had a weaker association with SSS ($r(3372)=0.119$, $p<0.001$) than educational attainment did ($r(3372)=0.279, p<0.001$). Interestingly, investigating educational attainment separately suggested that effects of CMVI were greater among less educated voters for Alliance 90/the Greens. This finding can be interpreted as first evidence that aspects of objective SES play a role in the size of bandwagon effects and is in line with results by Schmitt-Beck (1996) for the German parliamentary election of 1990. However, this result should be interpreted cautiously, as poll results showed a declining trend over time for this party. To

provide a complete picture of the role of social class in bandwagon effects, future research should include a measure of income level.

Finally, some questions regarding the underlying psychological mechanisms of bandwagon effects remain open because of the use of cross-sectional, correlational survey data. For example, it is unclear how voters' interpretation of poll results is influenced when they are exposed to several polls over the course of a few weeks. Based on social cognitive research, a so-called cumulative redundancy bias (Alves and Mata 2019) might occur, suggesting that voters' impressions about the winner in polls are biased by how the poll results develop over time. Additionally, it remains open how accurately voters remember currently perceived poll results in multiparty contexts. One reason for a lack of evidence for bandwagon effects might be that voters' memory for published polls is biased such that they remember the results for some parties more accurately than others. This would also distort the effects of poll results on voting intentions. Assessing recalled poll results during the election campaign could help shed light on the psychological underpinnings of bandwagon effects. Furthermore, due to the use of cross-sectional data, we were not able to model time-varying individual effects. Again, we think that future research in this field would benefit from using longitudinal data.

7 Conclusion

The present study adds to research on the political bandwagon effect in multiparty systems and the moderating effects of social class. We found limited evidence that published polls were associated with voting intentions in the German parliamentary election of 2021. Only for the SPD were higher poll results associated with higher voting intentions among those who had previously seen the polls. Voters' social class could not be identified as a boundary condition of bandwagon effects. Consequently, taking into account this sociodemographic characteristic of voters does not appear to resolve the mixed evidence in this field of research. Aside from calling into question the generalizability of previously found social cognitive effects of social class across different contexts, our research helps to identify avenues for future research on bandwagon effects in multiparty systems.

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Do Consumers of All Social Classes Prefer Best Sellers? Three Pre-registered Replication Studies of Na et al. (2016)

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Abstract

This report presents three pre-registered replication studies on the role of social class in the tendency to align one's product choices with those of others. The original research found that working-class Americans were more likely to conform to the majority's product choice compared to middle-class Americans. These class-based differences in conformity were explained by a more pronounced interdependent self-construal among lower-class compared to higher-class individuals. However, empirical evidence for a negative relationship between social class and an interdependent self-construal is mixed, which also calls into question the robustness of its relationship with conformity. The aim of the present research was to clarify the generalizability and replicability of the role of social class in conformity in product choices, while taking into account the cultural context. Thus, we conducted three pre-registered replications of the original experiment, two of them with German samples and one with a U.S. sample (total $N = 592$). None of the studies were able to replicate the negative relationship between social class and the tendency to adjust one's product choices to the preferences of the majority. The relationship was not significant in the German samples and it even pointed in the opposite direction as expected in the U.S. sample. These results suggest that the generalizability of the relationship between social class and the tendency to follow social preferences is more limited than previously thought. We highlight the importance of conducting conceptual replication studies using different operationalizations of conformity and adopting a cross-cultural perspective on social class.

Keywords: social influence, social class, conformity, consumer choices, replication

Do Consumers of All Social Classes Prefer Best Sellers?
Three Pre-registered Replication Studies of Na et al. (2016)

In modern consumer contexts, companies often use the strategy of communicating information about which product the majority of consumers ostensibly like in order to influence consumers' decisions. This is done, for example, by labeling products as 'best sellers' in advertising campaigns. This marketing tactic is based on several theoretical underpinnings. Social psychology has long identified social influence as an important predictor of individuals' choices (e.g., Asch, 1956). In marketing research, studies have confirmed that presenting information about majority preferences for products (i.e., suggesting that a majority of consumers have purchased this product on previous occasions) can effectively shift consumer decisions in various contexts (e.g., Rao et al., 2001; Roethke et al., 2020; Salazar et al., 2013; Salmon et al., 2015; Thomas et al., 2017). Within this field, social influence has often been conceptualized as *herd behavior* or *bandwagon effect* (Leibenstein, 1950) which describes the tendency of individuals to adopt the viewpoint of the majority even if it differs from their own (for an overview, see Bindra et al., 2022).

Yet, social influence does not appear to be equally large among all individuals. Aside from contextual factors, several inter-individual difference variables have been identified that moderate the strength of social influence. For example, people that perceive a high level of uncertainty (Deutsch & Gerard, 1955) or a low self-esteem (e.g., Chou et al., 2013; Tainaka et al., 2014) show a larger tendency to follow others' preferences.

Extending this line of research, Na et al. (2016) introduced consumers' social class as a moderator of majority influence on purchase decisions. Using U.S. student samples, their research showed that individuals from lower social class (i.e., working class) expressed a larger tendency to adapt their product choice to a majority preference compared to those from higher social class (i.e., middle class). Notably, the authors established that social class influences the extent of majority influence through its negative relationship with an interdependent self-construal, supporting the so-called social cognitive theory of social class (Kraus et al., 2012). Na et al.'s paper, published in a prestigious social psychological journal, holds significance as it is frequently cited in articles focusing on the psychological foundations of social class (e.g., Carey & Markus, 2017) and applied studies on environmentally conscious consumer behavior (Eom et al., 2018; Sparkman et al., 2020). This recognition is reflected in its placement within the top 25% of research outputs tracked by Altmetric (as of February 2024, https://sage.altmetric.com/details/6201240#score).

However, more recent social psychological research on social class has raised concerns about potential methodological shortcomings of prevailing practices generally and, consequentially, about the generalizability of previously found social class effects. Specifically, the usage of inadequate measures of social class has been criticized (Antonoplis, 2023) as well as the reliance on rather small samples consisting mainly of U.S. students (see e.g., Gobel & Miyamoto, 2024). Indeed, studies have shown that particularly the association between social class and an interdependent self-construal appears to be less robust than expected (Boileau, 2022; see also Stephens et al., 2007). This also calls into question the

generalizability of the previously found negative relationship between social class and conformity.

By conducting three pre-registered replication studies of Na et al.'s (2016) Study 1, two of them in the German context and one in the US context, with more diverse samples in terms of social class and considering multiple indicators of the construct, the present research contributes to clarifying the generalizability of the role of social class in majority influence. Moreover, a subordinate goal was to shed light on the assumed underlying mechanism, class-based differences in self-construal.

Social Class and Self-Construal

Na et al.'s (2016) theoretical argument is based on a social cognitive perspective on social class which postulates that repeated experiences in social class contexts shape individuals' psychological tendencies (Markus & Stephens, 2017; Kraus et al., 2012; Kraus & Stephens, 2012). Within these models, social class is defined by a) objective components, i.e., ones' access to (material) resources (socio-economic status, SES), and b) subjective components, i.e., perceived standing in the societal hierarchy (subjective social status, SSS). A main premise of these models is that the material constraints experienced by lower-class individuals limit the opportunities to follow own ideals and shift the focus on the feelings and behaviors of *others* (e.g., Kraus et al., 2012; Kraus & Stephens, 2012). In contrast, individuals from higher-class contexts experience less constraints and a larger freedom to pursue independent choices and are, thus, more oriented toward their *self*. Among effects on other psychological tendencies, these class-based differences are expected to be reflected in the self-construal: People from lower social classes are predicted to develop a more *interdependent* self-construal, i.e., a view of their self as embedded in their social relations, whereas people from higher social classes are predicted to develop a more *independent* self-construal, i.e., a view of their self as unique, separate entity (e.g., Carey & Markus, 2017; Kraus et al., 2012).

Even though the assumed link between social class and an interdependent self-construal constitutes a central premise of social cognitive models of social class, the empirical evidence does not appear consistent: While research by Fernández et al. (2005) and Grossmann and Varnum (2011) showed that students of lower social class (measured via parental education) reported a more interdependent self-construal across different cultures, another study could not replicate this relationship (Stephens et al., 2007). Additionally, Na et al. (2010) proposed class-based differences in social orientation, yet a closer look at their results reveals a dependence on the specific measures employed. There was no significant class-based (measured via own education) difference in an interdependent self-construal as measured via the Self-Construal Scale by Singelis (1994) and the difference was even significant in the opposite direction as expected when using the Twenty Statement Task (Kuhn & McPartland, 1954) (see Table S4, Na et al., 2010), suggesting that higher-class individuals have a more interdependent self-construal. Furthermore, recent large-scale studies based on representative samples from the U.S. and Germany (A. Batruch, personal communication, December 6, 2023) using several of the most common self-report scales did not support the assumption that lower-class individuals exhibit a more interdependent self-

construal. In sum, class-based differences in self-construal which were proposed as mediator in the context of conformity in product choices are less robust than proposed.

Social Class and (Product) Choices

Independent of the assumed psychological underpinnings, however, several studies on product choices have yielded results in line with the predictions of social cognitive models of social class. In particular, lower-class individuals were more likely to be influenced by social preferences in their product choices and reacted more positively to reduced individuation compared to higher-class individuals (Stephens et al., 2007). For example, people of lower social class (as measured via parental educational attainment) more often chose the same pen as an ostensible former participant and liked their choice more when another person apparently made the same choice (vs. a different choice) (Stephens et al., 2007). In contrast, another person's choice did not affect the ratings of the chosen pen for participants with higher social class. These findings suggest that individuals from lower social classes might be relatively more likely to make choices which promote similarity to and connection with others whereas individuals from higher social classes might be relatively more likely to make choices that produce uniqueness and differentiation from others (Stephens et al., 2011; Stephens et al., 2007).

Building on this line of research, studies by Na and colleagues (2016) showed that a higher sensitivity to social preferences among lower-class individuals could even override personal preferences in product choice scenarios. The authors conducted three quasi-experimental studies based on U.S. student samples (Study 1: $N = 43$, Study 2: $N = 107$, Study 3: $N = 101$). Within these studies, participants firstly made 60 product choices among equally attractive alternatives and received manipulated feedback indicating that the majority of previous participants had either chosen the same product (consistent trials) or a different one (conflicting trials). Then, they were shown the product pairs again and asked to indicate which product they would purchase based on their current feelings.[12] The number of *changes* in product choice in conflicting trials relative to consistent trials served as a measure of conformity. Na and colleagues found that members of the working class (as operationalized by maternal education and SSS) made more changes compared to members of the middle class when the majority had ostensibly made a deviating choice. There was no significant difference between middle- and working-class participants when the majority had ostensibly made the same choice (effect size of the interaction effect between SES and type of feedback (Study 1): $\eta_p^2 = .29$). The authors concluded that working-class Americans show a larger tendency to align their product choices with a perceived majority choice than middle-class Americans.

Na and colleagues (2016) replicated their main finding across two additional studies aimed at testing the cross-cultural robustness and participants' self-construal as potential underlying mechanism. In Study 2, Na et al. found that the effect of social class on majority

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[12] In a final recognition phase participants were presented with the product pairs from the previous phases as well as with 37 new pairs. They had to complete an old-new-recognition task and indicate which item was the more popular one for the old pairs. The results showed that middle-class participants had worse memory for the feedback that the majority had made a different choice than they had, and no such effect was found for working-class participants ($\eta_p^2 = .17$).

influence was diminished when investigating students with East-Asian background which they explained with a generally larger tendency to follow social preferences in interdependent cultures. In Study 3, a similarity vs. difference priming was used to imitate the effects of an interdependent vs. independent self-construal among an American sample. Social class had no significant effect on the tendency to follow a majority product choice over and above this priming which the authors interpreted as support for class-based differences in self-construal as underlying psychological mechanism. While this approach was beneficial for understanding the causal effect of self-construal (as mediator) on the tendency to follow majority preferences, it omitted investigating the relationship between social class and self-construal, and, thus, did not allow for an analysis of the entire indirect effect (see Pirlott & MacKinnon, 2016). Considering the above-mentioned mixed evidence for the negative relationship between an interdependent self-construal and social class, it appears crucial to clarify the robustness of the relationship between social class and choice behavior under social influence based on (cross-cultural) replication studies with larger, more diverse samples.

The Present Research

After Study 1a (pre-registered) was planned as a first attempt to replicate class-based differences in conformity in the German context as part of an originally different research project, we conducted two more targeted, pre-registered replication studies of Study 1 by Na and colleagues (2016). These aimed at providing diagnostic information on the replicability and generalizability of the proposed negative effect of social class on the tendency to follow a majority in product choices in a different cultural context. We hereby focused on Na et al.'s product choice change paradigm to investigate the level of conformity with a majority.[13] While Studies 1a and 1b were conducted with German samples, Study 2 constituted a high-powered replication study with a U.S. sample to more closely follow the study of Na et al. Additionally, Study 1b and Study 2 aimed to investigate the relationship between social class and chronic interdependent self-construal, which was proposed by Na et al. as a potential mediator for the social class effect.

Aside from implications for external validity, a replication of the social class effect on conformity outside the U.S.A. appears to be relevant for theoretical considerations. Specifically, we argue that societal characteristics of the U.S.A. may have enhanced the link between social class and conformity in prior studies. Previous research shows that the positive association between social rank and individualistic traits is particularly pronounced in cultures in which individualism is highly valued (Gobel & Miyamoto, 2024; Zhang et al., 2021). As the U.S.A. is the most individualistic country in the world (Hofstede et al., 2010), it can be expected that American individuals from higher social classes express a particularly lower tendency to adjust their product choices to social preferences. In Germany as less individualistic society compared to the U.S.A., social classes may differ less in their tendency to make individualistic product choices. Secondly, the U.S.A. is characterized by a higher level of income inequality compared to Germany (Gini index 2021: 37.4 vs. 29.7; Solt, 2019).

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[13] Due to pragmatic considerations concerning the study length, we abstained from additionally assessing memory performance in Studies 1b and 2.

As a higher inequality can increase the salience of one's social class and consequently social class effects (Cheung & Lucas, 2016; Schneider, 2019), the link between social class and the tendency to follow a majority product choice may be smaller in Germany. Consequently, conducting replication studies for Na et al.'s (2016) research in the German context constitutes a conservative test of the robustness of the investigated social class effects.

Thus, if we could replicate that people with lower social class show a larger tendency to follow a perceived majority product choice in all three studies independently from the cultural setting, this would support the robustness of the finding across Western countries. The absence of such an effect in the German studies but not the U.S. study would indicate that the generalizability of the finding by Na et al. (2016) might be more limited by cultural context than expected. Finally, if we could not replicate the original finding in any of the studies, this would cast doubts on the robustness of effects of social class for majority influence generally.

All of the reported studies in this manuscript were pre-registered (Study 1a: https://aspredicted.org/45V_LBL, Study 1b: https://aspredicted.org/7VC_8JD, Study 2: https://aspredicted.org/Q47_GYZ) and all preregistrations included the study design, planned sample size, exclusion criteria, and planned primary analyses. All preregistrations adhere to the disclosure requirements of aspredicted.org. All pre-registered analyses are reported in the manuscript or Supplement. All materials (exception: product pictures (shared upon request)), R code for all reported analyses, data and codebooks are available at https://osf.io/fmc29/?view_only=34bc5c1f50df4bb9b46c33eb5b81e50d

Study 1a

Study 1a constituted a first attempt to replicate the first study by Na et al. (2016) with a German sample and had the preliminary goal to explore class-based differences in conformity in another, less individualistic cultural context. We followed Na et al.'s methodology as closely as possible but adapted the study in the following aspects: First, as we did not have access to the original stimulus material[14] and in order to use products common to German consumers, we used standardized images of products taken from German online stores. Second, while the original study was conducted as laboratory experiment, we collected data online as in-person data collection was restricted in spring 2020 due to pandemic regulations in Germany. Therefore, unlike the original study, we implemented pre-registered exclusion criteria to ensure high data quality, such as failing a seriousness check and answering too few attention checks correctly. Nevertheless, this approach allowed us to collect data from a larger, more diverse sample of participants and, thus, with larger statistical power. Third, we went beyond Na et al. by not only measuring SSS and maternal education as indicators of working vs. middle class membership, but also assessing and analyzing additional indicators of SES such as participants' own educational attainment and household income level, in order to gain a more nuanced understanding of social class effects. If the findings of Na et al. can be replicated, only participants with lower SES (working class) respectively lower SSS should be responsive to social preferences, i.e., make more changes

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[14] We had contacted the first author of the original paper, Jinkyung Na, in March 2020 to borrow their study material but did not receive a response.

when a perceived majority of others has made a different product choice than when a
perceived majority of others has made the same product choice. Participants with higher SES
(middle class) respectively SSS should not be influenced by social preferences in their
product choices.

Method
Materials

Following the procedure employed by Na et al. (2016), participants were presented
with 60 product pairs individually and asked to choose the product they would like to
purchase for each pair. Within each pair, the products were in the same product category (e.g.,
two watches) and we ensured that they differed only in their color or design. The images of
the products were taken from German online retail websites and had a standardized white
background. Most of the products were utilitarian everyday objects and did not show the
brand name at all or only in an unobtrusive way[15].

Participants

Na et al. (2016) investigated their *change of choice* – paradigm with student samples
from the University of Texas at Dallas (Study 1: $N = 43$, Study 2: $N = 107$, Study 3: $N = 101$).
Since Study 1a was not originally planned as a conclusive replication study, we relied on an a
priori power analysis to determine the sample size. Using G*Power (Faul et al., 2009) for
alpha = .05 and a power of 90% to detect a medium effect size of $f^2 = 0.15$ (original effect
size Study 1: $\eta_p^2 = .29$) in a multiple regression analysis with one predictor resulted in a
sample size of 73 participants. To investigate effects of social class, it seems crucial to have a
diverse sample which is why we collected data via prolific.co. Data was obtained from 86
German participants. After excluding participants according to the pre-registered exclusion
criteria[16] (failing the seriousness check or more than 12 of 60 attention check items), we
arrived at a final sample size of 77[17] participants (18 female, 57 male, 2 diverse; $M_{age} = 28.13$
years, $SD = 8.88$). Only about one third of the participants were students ($n = 24$), suggesting
that this sample was more diverse in this respect than the original study.

Procedure

Study 1a was conducted via SoSci Survey (Leiner, 2019). Although it was conducted
online instead of in the lab, we closely followed the procedure described by Na et al. (2016).
At the beginning of the study, participants were informed that the study was about consumer
choices. In choice phase 1, participants viewed the 60 product pairs and indicated for each
pair which of the two products they would purchase if they had to make a decision. It was

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[15] With the exception of one product pair, when a brand name was visible, it was identical for both products in a
pair. This was the case for 20 of the 60 product pairs. For the product pair with different visible brand names, we
ensured that the price of the two products was comparable at the time of data collection. Excluding this product
pair did not change the pattern of results.

[16] One person did not answer the seriousness check but provided answers on all other measures. Excluding this
person from the dataset did not change the pattern of results.

[17] Notably, this sample size is slightly below the pre-registered target sample size of 80 but was still considered
sufficient based on the power analysis.

randomized which of the two products in a pair was presented on which side of the screen. This was kept constant over the course of the experiment. After each product choice participants received manipulated feedback regarding the popularity of the chosen product. The same item as in Na et al. was used, reading that x% of previous participants had made the same choice. In half of the trials, a random percentage between 75% and 95% was presented, reflecting a majority (consistent trials). In the other half, a random percentage between 5% and 25% was presented, reflecting a minority (conflicting trials). Following each feedback, participants were asked to indicate the more popular product, serving as an attention check.

In choice phase 2, participants were presented with the same product pairs as in the previous phase in an individualized randomized order and asked again which product they would purchase. We presented a German translation of the instruction used by Na et al. (2016), asking the participants to rely on their current feelings instead of attempting to recall their previous choices. Furthermore, we added that sometimes peoples' taste changes when looking at products a second time but that the first impression remains in other cases.

In the last phase, participants completed an old/new-recognition task with the 60 old and 37 new product pairs. If a participant identified a product pair as old, they additionally indicated which item was more popular according to the feedback presented before.

Finally, we measured participants' SSS using the MacArthur Scale (e.g., Adler et al., 2000) (M = 5.65, SD = 1.61, range: 1-8). Among further demographics (age, gender, country of education, country of birth, nationality, years of living in Germany, parents' and grandparents' country of birth, ethnicity[18], German language proficiency) (see Supplement (1) for descriptives), indicators of SES were assessed. These items were adapted to the German context. Specifically, participants indicated their educational level on a scale with 8 options plus an "other" option (*Median* = high school diploma) and their current annual gross household income on category options from 1 (*below 15,000€*) to 8 (*over 150,000€*) (*Median* = 35,001€ - 50,000€). Furthermore, participants indicated their parents' educational attainment, their own occupational status, occupation and the number of people living in the household. After indicating whether they had answered all questions seriously and honestly participants were debriefed.

Results
Changes in Choice Predicted by Social Class
We computed one variable for the number of changes in product choice in consistent trials (M = 2.29, SD = 2.37) and a variable for the number of changes in conflicting trials (M = 3.45, SD = 3.12). A paired samples *t*-test showed that participants made significantly more changes in conflicting trials than in consistent trials, $t(76)$ = 4.98, $p < .001$, $d = 0.57$, 95% CI for d [0.32, 0.81]. This suggests that the manipulation of social preferences was successful, and people generally followed the product choice of a perceived majority. Following Na et al.'s analytical approach (2016), we subtracted the number of changes in consistent trials from the number of changes in conflicting trials to obtain a conformity score (M = 1.17, SD = 2.06) with higher values reflecting a larger conformity with the majority choice. In the following,

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[18] The ethnicity item used by Na et al. (2016) for U.S. samples was adapted such that it included ethnic groups that were relevant in the German context.

we firstly report the findings from the pre-registered analyses using SSS respectively a score of SES (based on education and household income) as predictor. Then, we provide an exact replication of the analyses of the original research, categorizing participants as either working or middle class based on maternal education.

Subjective Social Status. Firstly, the conformity score was regressed on SSS as single predictor. As a lower social class was expected to be associated with more conformity in product choices, a negative association would be in line with the original results.[19] Additionally, this relationship was expected to be robust to controlling for participants' gender and ethnicity. For SSS, we found a non-significant association with conformity, β = 0.16, SE = 0.11, t = 1.37, p = .174, 95% CI [-0.07, 0.38], JZS BF = 0.53 (controlling for gender: β = 0.14, SE = 0.11, t = 1.19, p = .240, 95% CI [-0.09, 0.37], JZS BF = 0.48). After excluding outliers on the dependent variable, SSS was significantly associated with the conformity score, but contrary to the findings by Na et al. (2016) individuals with higher SSS indicated more conformity, β = 0.24, SE = 0.11, t = 2.07, p = .042, 95% CI [0.01, 0.47], JZS BF = 1.48.

Objective SES. We repeated the analysis with a single index of SES. For this purpose, we coded and z-standardized educational attainment and household income and took their mean (see Kraus & Keltner, 2009). For students, pupils, and people in training, we created an adjusted SES index based on their parents' educational level (mean of father's and mother's educational level) and their current family household income. Contrary to Na et al.'s (2016) finding, SES was not significantly associated with the conformity score when included as single predictor, β = 0.05, SE = 0.12, t = 0.44, p = .663, 95% CI [-0.18, 0.28], Jeffrey–Zellner–Siow (JZS) BF = 0.26. Controlling for gender[20] did not change this pattern, β = 0.03, SE = 0.12, t = 0.27, p = .788, 95% CI [-0.20, 0.26], JZS BF = 0.25. Furthermore, using own education or household income as separate indicators did not change the pattern of results (see Supplement (1)). Finally, neither SES nor SSS were significantly associated with the total number of choices (SES: p = .325; SSS: p = .403).

Replication of Na et al.' s (2016) Analysis. To directly replicate the analyses of the original article, we used maternal education as a binary indicator of social class. Participants whose mother did not have a university degree (n = 60) were labeled as working class and participants whose mother had a university degree or a doctoral degree were labeled as middle class (n = 17). Indeed, working-class participants indicated a significantly lower SSS (M = 5.43, SD = 1.63) than middle-class participants (M = 6.41, SD = 1.33), $t(75)$ = -2.27, p = .026, d = -0.62, 95% CI for d [-1.17, -0.07]. A 2 (social class: working vs. middle) x 2 (trial type: consistent vs. conflicting) mixed ANOVA (with Greenhouse-Geisser corrections, R package

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[19] We deviated from the pre-registration in using two-sided instead of one-sided p-values to remain consistent to the original study and across the present studies. This did not change the pattern of significance for any of the main results.

[20] To include gender as covariate, we excluded two participants that had indicated "diverse" for their gender. Different from our pre-registration, we did not include ethnicity as covariate as the large majority of participants identified as German (n = 74) rendering any effect of this variable unlikely to find.

rstatix, Kassambara, 2023) resulted in a non-significant interaction effect between social class and type of feedback, $F(1, 75) = 0.67$, $p = .417$, $\eta_p^2 = .01$. Again, only the main effect of feedback was significant, $F(1, 75) = 20.93$, $p < .001$, $\eta_p^2 = .22$ (main effect of maternal education: $p = .656$). Excluding outliers on the dependent variable did not change the pattern of results.

Additional Analyses

   Memory Accuracy for Social Feedback Predicted by Social Class. Paralleling the approach of the original study, we subtracted the memory accuracy for feedback on social preferences (i.e., the probability of accurately identifying the more popular product in each pair that was correctly recognized as old) in conflicting trials from the respective memory accuracy in consistent trials and regressed this difference score separately on SES and on SSS. Na et al. (2016) had found that participants were overall better at remembering feedback on social preferences in consistent compared to conflicting trials. Importantly, this effect was moderated by social class such that individuals from the middle class had worse memory for conflicting social feedback compared to consistent social feedback while there was no such difference among working-class individuals.

   In the present study, memory accuracy for social preferences ($M = 0.69$, $SD = 0.08$) was significantly higher than chance level (.50), $p < .001$. Similar to the original research, we found that participants showed a higher memory accuracy for social preferences in trials with consistent ($M = 0.80$, $SD = 0.13$) compared to conflicting feedback ($M = 0.58$, $SD = 0.17$), $t(76) = 7.38$, $p < .001$, $d = 0.84$, 95% CI for d [0.58, 1.10]. However, different from Na et al.'s (2016) results, a difference score of memory accuracy (computed as memory accuracy for trials with consistent minus memory accuracy for trials with conflicting feedback) was not significantly associated with SES, $p = .871$ (measured via maternal education: $p = .556$), or SSS, $p = .548$[21]. Controlling for gender did not change this pattern of results, $p = .977$, /$p = .504$.

Discussion

   In contrast to Na et al.'s (2016) findings, we did not find a moderation of the tendency to follow social preferences in product choices by indicators of SES. This suggests that individuals across the social class spectrum did not differ in this regard in the German context. Preliminary evidence suggests that individuals with higher SSS may be more inclined to follow the perceived majority choice, contrary to previous findings. Furthermore, we did not find any class-based differences in memory accuracy for perceived social preferences. In conclusion, the social class effect reported by Na et al. was not replicated in Study 1a. Notably, the manipulation of social preferences was successful: In line with previous research on bandwagon effects (e.g. Cho et al., 2022; Leibenstein, 1950), we found that people generally changed their product choice more often to follow the majority when the majority

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[21] Additionally, paralleling Na et al.'s findings (2016), neither SES nor SSS predicted hit rates (old pairs identified as old), false alarm rates (new pairs misidentified as old) or discrimination indices (see Supplement (1)), suggesting that people across the social class spectrum differentiated old and new product pairs equally well.

had preferred a product they had not originally chosen. This result suggests that the general paradigm was adapted successfully to investigate social influence in the German context.

However, although the present study assessed a larger and more diverse sample compared to the original research, it was not sufficiently powered to provide conclusive evidence for a non-replication of the interaction effect between social class and feedback on social preferences. To be able to make a meaningful statement about the replicability of the role of social class in choice behavior in the German context, and thus, the cultural context as potential boundary condition for social class effects, we took several measures to increase power in the following study.

Study 1b

In Study 1b, we made several improvements to the design from Study 1a. We assessed a larger German sample to increase statistical power and adhered more closely to the approach by Na et al. (2016) by focusing on a predominantly student sample. Additionally, we manipulated temporary perceptions of SSS instead of measuring chronic SSS. Thus, we were able to examine rank-based, social comparative aspects of social class and investigate causality beyond the original research. In the first choice phase of Study 1a, participants' answers suggested that for some product pairs, the products were not perceived as equally attractive (see Supplemental Table S1). Therefore, we limited the number of product choice trials to the 26 product pairs that were closest to being perceived as equally attractive in Study 1a. In Study 1b, we omitted the assessment of memory of the feedback, as this part of the study had substantially increased its length while being less informative for the role of social class in majority influence per se.

Additionally, we attempted to shed some light on the psychological mechanism underlying social class differences in conformity by assessing the perceived similarity with other participants. Na et al. (2016) found that experimentally priming a higher (vs. lower) perceived similarity with others as a proxy for an interdependent self-construal diminished class-based differences in the tendency to conform to social preferences (Study 3). The authors concluded that individuals from lower social classes are more likely to follow a majority due to a higher perceived similarity with others. To clarify if this can be generalized to the German context, we assessed how similar participants perceived themselves to other participants and explored potential class-based differences in this perception.

Method
Materials
To ensure that the products within each product pair were equally attractive, we selected the 26 product pairs that best fulfilled this criterion in Study 1a based on the decisions of the participants in the first choice phase. Specifically, we selected 21 pairs based on binomial tests and an additional 5 pairs that came close to achieving similar levels of attractiveness across the respective products (see Supplemental Table S1).

Participants
Taking into account the small effect size found in Study 1a, we conducted an a-priori power analysis using G*Power (Faul et al., 2009) for alpha = .05 and a power of 80% to

detect a small effect size of $f = 0.10$ for the interaction effect of a 2 x 2 mixed ANOVA which resulted in a sample size of 200. We pre-registered a minimum sample size of 200 valid cases and collected data from 242 participants. In doing so, we also met the sample size recommendation by Simonsohn (2015) for replication studies (i.e., at least 2.5 times the original sample size). Participants were recruited from social media platforms and were offered course credit or the chance to take part in a raffle. After applying pre-registered exclusion criteria (failing more than 6 of the 26 attention check items, failing a seriousness check), we arrived at a sample of 207 German participants. Additionally, we excluded participants with invalid values (i.e., answers outside the range of 1 to 10) on their SSS ($n = 4$). The final sample consisted of 203 participants (159 female, 43 male, 1 diverse; $M_{age} = 24.75$ years, $SD = 10.52$). The majority of the sample were students ($n = 166$, including 101 psychology majors).

Procedure

Study 1b was conducted online. The procedure of Study 1b differed to the one from Study 1a in some respects. In the beginning of the study, we manipulated participants' SSS through downward versus upward comparisons (Aydin et al., 2019; Piff et al., 2010). Participants were presented with the MacArthur Scale, an image of a ladder with 10 rungs representing German society (Adler et al., 2000). They were asked to compare themselves to people at the top ($n = 98$) vs. bottom ($n = 105$) of the ladder which was meant to induce the feeling of having a lower vs. higher perceived standing in society. To strengthen the manipulation, participants were asked to indicate differences between themselves and people from the respective end of the ladder. As a manipulation check, they answered on which ladder rung they feel they stand within German society.

Then, the first choice phase started and was set up like in Study 1a, but with a reduced number of 26 product pairs. Again, after each product choice, participants received feedback on the ostensible majority preference followed by an attention check item asking to indicate which of the two products was the more popular one. In the second choice phase, participants were again presented with the same 26 product pairs and indicated how they felt about the products now. Finally, participants completed the measures of SES among further demographics (gender, age, German language skills). Parallel to Study 1a, SES was assessed via educational level (*Median* = high school diploma) and current household income (8-point scale plus "don't know" option[22]) (*Median* = 50,001€ - 75,000€). Additionally, we assessed parents' educational attainment, participants' occupational status, occupation and the field of studies for students. Different from Study 1a and to further explore potential social class differences in the perception of the feedback on the majority choice, participants rated their agreement to the statement that the other participants of the study are similar to them on a scale from 1 (*disagree completely*) to 7 (*agree completely*) ($M = 3.95$, $SD = 1.14$).[23] After a seriouness check participants were debriefed.

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[22] 56 participants indicated that they did not know their household income.

[23] At the end of the study, participants were asked to answer several items in English that were part of a different, unrelated research project (see study material at
https://osf.io/fmc29/?view_only=34bc5c1f50df4bb9b46c33eb5b81e50d).

Results

Manipulation Check

Participants who compared themselves to people from the bottom of the ladder indicated a significantly higher perceived standing in society ($M = 6.49$, $SD = 1.28$) than participants that compared themselves to people from the top of the ladder ($M = 5.92$, $SD = 1.45$), $t(201) = -2.96$, $p^{24} = .003$, $d = -0.42$, 95% CI [-0.69, -0.14]. This result suggests that the manipulation of SSS was successful.

Changes in Choice Predicted by Social Class

Overall, the number of changes in product choice made by participants was rather low ($M = 2.01$, $SD = 2.15$) and about a third of the participants ($n = 65$) did not make any changes in product choice.

Subjective Social Status. A 2-between (SSS: low vs. high) x 2-within (feedback: conflicting vs. consistent) mixed ANOVA with the number of changes in product choice as dependent variable was computed (with Greenhouse-Geisser corrections, R package afex, Singmann et al., 2022). Replicating the result of Study 1, feedback type had a significant main effect, $F(1, 201) = 29.36$, $p < .001$, $\eta_p^2 = .13$, 95% CI [0.05, 0.22], as participants made significantly more changes in product choice after conflicting ($M = 1.31$, $SD = 1.56$) than after consistent feedback ($M = 0.70$, $SD = 1.07$). Different from Study 1a, SSS had a small but significant main effect on the total number of choices, $F(1, 201) = 4.85$, $p = .029$, $\eta_p^2 = .02$, 95% CI [0.00, 0.08], indicating that, averaged over feedback type, participants in the high SSS condition made significantly more changes in product choice ($M = 1.17$, $SD = 1.48$) than participants in the low SSS condition ($M = 0.84$, $SD = 1.23$). As in Study 1a and not in line with the tested hypothesis, the interaction effect between SSS and feedback type was not significant, $F(1, 201) = 0.43$, $p = .514$, $\eta_p^2 = .002$, 95% CI [0.00, 0.03] (see Figure 1). When conducting the analysis with excluded outliers on the changes in choice ($n = 20$) the main effect of SSS was not significant, $p = .123$, whereas the rest of the results remained robust.

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[24] Again, different from the pre-registration, we used two-sided instead of one-sided p-values to remain consistent across studies.

Figure 1

Number of Changes in Product Choice Depending on Manipulated Subjective Social Status and Type of Feedback on Majority Preferences
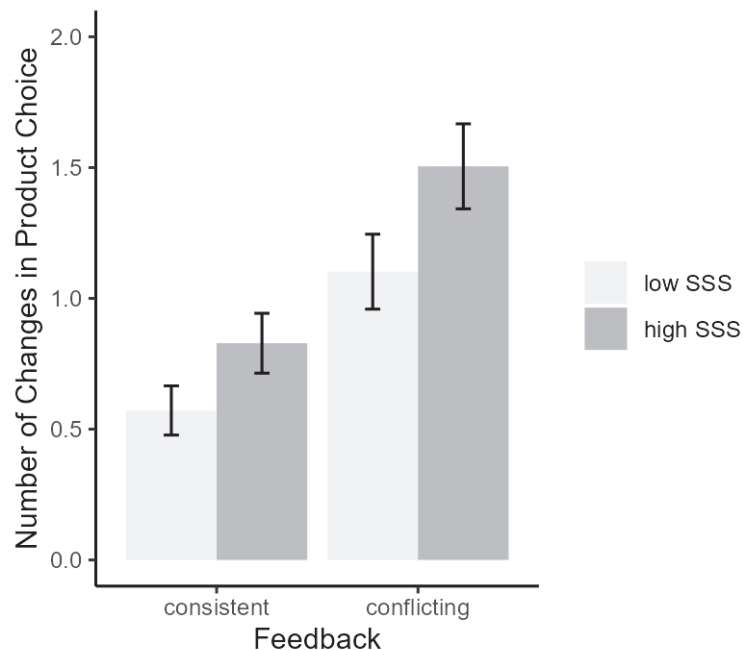
Note. $N = 203$. SSS = Subjective social status. In trials with consistent feedback, participants received the feedback that a majority of participants (a random number between 75 and 95%) had made the same product choice as they have. In trials with conflicting feedback, participants read that a minority of participants (a random number between 5 and 25%) had made the same product choice as they have. Error bars represent standard errors of the mean.

In addition to the pre-registered analyses, we included SSS as measured in the manipulation check as continuous predictor of conformity in a linear regression. To obtain the criterion, we subtracted the number of changes in consistent trials from the number of changes in conflicting trials as in Study 1a ($M = 0.61$, $SD = 1.58$). While SSS was descriptively negatively associated with this difference score, indicating that participants with lower SSS made more changes after conflicting compared to consistent feedback, this effect was not significant, $\beta = -0.08$, $SE = 0.07$, $t = -1.19$, $p = .237$, 95% CI [-0.22, 0.06], JZS $BF = 0.30$.

Objective SES. Parallel to Study 1a, we created an index of SES based on educational attainment and household income (for students and apprentices: based on their parents' education and family household income). Importantly, SES did not differ significantly between the two experimental groups, $p > .420$, suggesting that the SSS manipulation did not affect the objective indicators of social class.

While SES was negatively associated with the above-mentioned difference score of changes in choice, $\beta = -0.13$, $SE = 0.08$, $t(145) = -1.61$, $p = .109$, 95% CI [-0.30, 0.03], JZS $BF = 0.58$, this association failed to reach significance at conventional significance levels.

This result was robust to controlling for gender[25], $\beta = -0.10$, $SE = 0.08$, $t(143) = -1.22$, $p = .226$, 95% CI [-0.27, 0.06], JZS $BF = 0.47$. Furthermore, SES was not associated with the total number of changes (SES: $p = .195$). Using own education or household income as separate predictors each did not change the pattern of results (see Supplement (2)).

Replication of Na et al.' s (2016) Analysis. Replicating the analyses by Na et al. (2016) by using maternal education as binary indicator of social class (working class: $n = 117$, middle class: $n = 82$) resulted in a non-significant interaction between social class and type of feedback on the number of changes in product choice, $F(1, 197) = 1.86$, $p = .174$, $\eta_p^2 = .01$, 95% CI [0.00, 0.05]. Again, merely feedback type had a significant main effect on the number of changes in choice, $F(1, 197) = 24.88$, $p < .001$, $\eta_p^2 = .11$, 95% CI [0.04, 0.20] (for maternal education $p > .101$). The results for the different indicators of SES were robust to excluding outliers on the dependent variable.

Exploratory Analyses

Perceived Similarity. As expected, participants who perceived themselves as more similar with the other participants showed a higher level of conformity with the majority preference, i.e., they changed their product choice significantly more often after conflicting compared to consistent feedback, $\beta = 0.17$, $SE = 0.07$, $t = 2.37$, $p = .019$, 95% CI [0.03, 0.30]). The relationship between perceived similarity and conformity did not vary significantly across SSS conditions, $\beta = 0.01$, $SE = 0.07$, $t = 0.08$, $p = .939$, 95% CI [-0.13, 0.14]), or the SES spectrum, $\beta = 0.01$, $SE = 0.08$, $t = 0.15$, $p = .883$, 95% CI [-0.14, 0.17]).

Additionally, participants in the low SSS condition did not perceive themselves as more similar to other participants ($M = 3.92$, $SD = 1.11$) compared to participants in the high SSS condition ($M = 3.98$, $SD = 1.17$), $t(201) = -0.39$, $p = .696$, $d = -0.05$, 95% CI [-0.33, 0.22]). Similarly, SES was not significantly correlated with the perceived similarity with other participants, $r(145) = -0.02$, $p = .764$ (for education and income: $ps > .330$).

Discussion

In contrast to Na et al.'s findings (2016), Study 1b replicated the results of Study 1a and showed that neither temporarily shifted SSS nor chronic SES were associated with the tendency to follow a perceived majority when making product choices in the German context. Surprisingly, individuals with higher SSS expressed a generally higher tendency to change their product choice independent of feedback on social norms. Consistent with the findings of Study 1a, social feedback influenced consumer choices, with individuals generally conforming to the product choices of others. This result supports the assumption that the experimental paradigm was adequately adapted to the German context and highlights the importance of social influence in consumer choices when strong prior preferences are absent (e.g., Leibenstein, 1950).

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[25] One participant who indicated „diverse" for their gender was excluded when we included gender as covariate in the analysis.

Additionally, Study 1b shed light on the role of perceived similarity in conformity and social class effects. Consistent with prior research on social norms (e.g., Neighbors et al., 2010), our results suggest that individuals show a larger tendency to follow others who they perceive as similar to themselves. However, we found no significant relationship between social class and the perceived similarity with other participants which challenges the notion of perceived similarity as mediator of class-based differences in conformity.

In sum, the results of Study 1a and 1b did not support the notion that individuals of lower social class are more likely to follow social preferences in consumer choices. As outlined above, the diverging results of our research compared to Na et al.'s (2016) findings might be due to the different cultural context of our research. Possibly, social class effects on conformity are less pronounced in Germany compared to the U.S.A. due to the country's less individualistic societal norms and lower income inequality. To determine if the effect of social class is dependent on the cultural context, we conducted a third replication study with a U.S. sample.

Study 2

Study 2 aimed to replicate the finding by Na et al. (2016) that social class moderates the effect of majority influence on product choices with a U.S. sample. As we did not find this effect in German samples in Studies 1a/b, Study 2 was conducted to clarify the potential role of the cultural context as a boundary condition for this social class effect.

Furthermore, Study 2 had the goal to shed light on its underlying psychological mechanism. Na et al. (2016) argued that class-based differences in conformity can be explained by a more interdependent self-construal among lower-class individuals. They showed that the link between social class and the sensitivity to social preferences was diminished among people from more interdependent cultures (Study 2) and under conditions in which an interdependent (compared to an independent) self-construal was temporally induced (Study 3). While these studies provided some evidence for the role of self-construal in the responsiveness to social preferences, they did not show that individuals from different social classes – but from the same cultural background – differ in their chronic interdependent self-construal. As outlined above, the empirical evidence regarding this association is mixed. To advance the understanding of the potential mediating role of self-construal, we went beyond prior research and assessed individuals' independent and interdependent self-construal.

Finally, we attempted to explore the association between social class and other potentially relevant psychological characteristics. Specifically, we assessed self-esteem as lower-class individuals tend to report lower self-esteem (Rosenberg & Pearlin, 1978; Twenge & Campbell, 2002), which, in turn, may reduce the tendency to follow a perceived majority (e.g., Chou et al., 2013; Tainaka et al., 2014). Additionally, we explored the role of the need for uniqueness which is defined as the desire to distinguish oneself from others and is often reflected in unusual consumer choices such as a preference for rare products (Lynn & Harris, 1997; Snyder & Fromkin, 1977) as well as nonconformity (Imhoff & Erb, 2009). Importantly, prior research also found that a higher need for uniqueness is associated with a more pronounced independent self-construal (Kastanakis & Balabanis, 2012).

Method

Materials

In order to stick with the procedure employed by Na et al. (2016) as closely as possible, to ensure a higher level of reliability and to maintain comparability to Studies 1a/b, we used the pictures of the 60 product pairs from Study 1a.

Participants

In light of the small effect sizes found in the German samples, we conducted an a-priori power analysis using G*Power for alpha = .05 and a power of 80% to detect a small effect size of $f^2 = 0.03$ for a multiple regression with one predictor which resulted in a required sample of 264. To maximize power in light of our resources, we pre-registered a minimum sample size of 303 valid cases and collected complete data from 327 US participants on prolific.co (with incomplete submissions: 350)[26].

Following our pre-registration, we excluded participants who failed more than 12 of the 60 attention checks and arrived at a final sample of 312 US participants (154 female, 148 male, 6 diverse, 4 no indication; $M_{age} = 32.41$ years, $SD = 11.06$). Among them, 230 participants identified as White/Caucasian, 55 as African American, 18 as Asian American, 20 as Hispanic/Latino and 5 as Native American (and 9 used an open answer format; multiple mentions were possible). Different from the original study, students made up merely 15.7% of the present sample. However, the sample appeared to be similar to the one investigated by Na et al. (2016) with regard to some aspects: Operationalizing SES via maternal education (i.e., no bachelor's degree/bachelor's degree or higher) led to an almost equal number of participants being classified as working class (47.3%) and middle class (52.7%) as found in the original study (original study: working class: 48.8%, middle class: 51.2%). Whereas our sample was also approximately balanced for gender (49.4% females), Na et al.'s sample had a slightly larger proportion of female participants (62.8%). With regard to ethnicity, both in our sample and in the one by Na et al., the majority of participants (73.7% vs 79.1%) identified as White/Caucasian whereas African Americans constituted the second largest group (17.6% vs 11.6%).

Procedure

Study 2 was conducted online. The beginning of the study was identical to Study 1a as we again attempted to follow the procedure by Na et al. (2016) very closely. Participants saw the 60 product pairs as described in the previous studies and indicated for each pair which of the two products they would purchase if they had to choose. Following each choice, manipulated feedback on social preferences (conflicting vs. consistent trials) was presented as described above. After the feedback participants indicated which of the two products was more popular as an attention check. Then, the second choice phase followed like in Study 1a.

Then, several psychological characteristics were assessed to advance the understanding of class-based differences in the psychological make up which might underly

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[26] We arrived at a slightly larger final sample than pre-registered (312 instead of 303 participants) as we aimed to ensure a sufficient sample size considering the pre-registered exclusion criteria.

its relationship with conformity. Firstly, participants' self-esteem was assessed using the 10-item Rosenberg scale (1965). Participants expressed agreement with the statements on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*) (Cronbach's α = .90).

Next, participants completed a short version of the Singelis' self-construal scale (D'Amico & Scrima, 2016) measuring interdependent and independent self-construal (Cronbach's α = .73/.77) with 5 items per dimension on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). We used this measure to examine the assumption by Na et al. (2016) that lower class individuals were more responsive to social preferences because of their more pronounced interdependent self-construal.

Then, need for uniqueness was assessed, both generally and specifically in the consumption context. As a measure of general need for uniqueness, participants completed the 12-item subscale on lack of concern regarding others' reactions to one's different ideas and actions of the need for uniqueness scale (Snyder & Fromkin, 1977; see also Schumpe et al., 2016; scale: 1 (*strongly disagree*) to 5 (*strongly agree*), Cronbach's α = .87). Additionally, we included three items from the scale on the *desire for unique consumer products* by Lynn and Harris (1997) which appeared specifically suited to the consumption context (e.g., "*I enjoy having things that others do not*") (Cronbach's α = .53).

Finally, participants indicated their SSS on the MacArthur Scale (*M* = 5.50, *SD* = 1.79) and among further demographics (gender, age, country of education, country of birth, nationality, years of living in the U.S.A., number of parents and grandparents born in the U.S.A., ethnicity), indicators of SES were assessed. Specifically, participants reported their educational level on a scale with 8 options plus an "other" option (*Median* = Bachelor's degree) which was adapted from the U.S. Census Bureau (2021). Current annual household income was assessed on category options from 1 (*below 15,000$*) to 8 (*over 150,000$*)[27] (*Median* = $50,001 und $75,000). Parallel to Na et al. (2016), we also assessed parents' educational attainment, participants' employment status, their occupation and the number of people living in the household.

Results
Changes in Choice Predicted by Social Class

Paralleling Studies 1a/b, we computed one variable for the number of changes in product choice in consistent trials (*M* = 2.96, *SD* = 3.03) and a variable for the number of changes in conflicting trials (*M* = 6.10, *SD* = 5.85). Based on these variables, we computed a conformity score as in Studies 1a/b (*M* = 3.14, *SD* = 5.09). Replicating the effect found in the first studies, participants made overall more changes in product choice in conflicting trials than in consistent trials, $t(311) = 10.88$, $p < .001$, $d = 0.62$, 95% CI [0.49, 0.74], indicating that they generally followed social preferences.

Subjective Social Status. We regressed the difference score as measure of conformity on SSS. Contrary to our expectation, we found a significant *positive* association with SSS, β = 0.30, *SE* = 0.05, $t = 5.57$, $p < .001$, 95% CI [0.20, 0.41], JZS *BF* > 199657, suggesting that people with higher SSS made relatively more changes in product choice after conflicting than

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[27] To assess income, we used the same number of category options as Na et al. (2016) but adjusted the income categories to better distinguish between lower income levels (see Piff et al., 2010).

after consistent feedback. This result was robust when controlling for gender[28] (female = 0, male = 1) and ethnicity (0 = other, 1 = White/Caucasian) as dummy-coded predictors[29], $\beta = 0.29$, $SE = 0.05$, $t = 5.34$, $p < .001$, 95% CI [0.18, 0.40], JZS $BF > 86723$. Additionally, the main effect of SSS on the number of choices was significant, $\beta = 0.24$, $SE = 0.06$, $t = 4.40$, $p < .001$, 95% CI [0.13, 0.35].

Objective SES. Paralleling Study 1a/b, we computed a composite score of SES. Similar to SSS, a higher SES was significantly positively associated with a larger difference score of changes in product choice, $\beta = 0.30$, $SE = 0.05$, $t = 5.63$, $p < .001$, 95% CI [0.20, 0.41], JZS $BF > 270681$. This association remained robust when controlling for gender and ethnicity[30] as described above, $\beta = 0.28$, $SE = 0.05$, $t = 5.09$, $p < .001$, 95% CI [0.17, 0.39], JZS $BF > 106971$. Furthermore, the main effect of SES on the number of choices was significant, $\beta = 0.32$, $SE = 0.05$, $t = 5.88$, $p < .001$, 95% CI [0.21, 0.42]. Excluding outliers on the conformity score ($n = 4$) or using own education respectively household income as separate predictors each did not change the pattern of results (see Supplement (3)).

Replication of Na et al.' s (2016) Analysis. As direct replication of the analyses of Na et al. (2016), we used maternal education as binary indicator of social class as in Study 1a/b (working class: $n = 148$; middle class: $n = 163$; one person did not indicate maternal education)[31]. Paralleling the result for the SES score, a 2 (social class: working vs. middle) x 2 (trial type: consistent vs. conflicting) mixed ANOVA indicated that individuals made more changes in conflicting compared to consistent trials, $F(1, 309) = 119.99$, $p <.001$, $\eta_p^2 = .28$, 95% CI [0.20, 0.36]. Additionally, this effect was moderated by social class, $F(1, 309) = 17.07$, $p <.001$, $\eta_p^2 = .05$, 95% CI [0.01, 0.11]. Post hoc comparisons revealed that, contrary to the results found by Na et al. (2016), the effect of feedback on social preferences was larger among middle-class participants, $t(309) = -10.93$, $p <.001$, $d = -0.62$, 95% CI [-0.74, -0.50], compared to working-class participants, $t(309) = -4.26$, $p <.001$, $d = -0.27$, 95% CI [-0.38, -0.15], suggesting that people from the middle class showed a higher level of conformity. Furthermore, different from the original study, the main effect of social class was significant, $F(1, 309) = 25.87$, $p <.001$, $\eta_p^2 = .08$, 95% CI [0.03, 0.14], indicating that people from the middle class made overall more changes compared to people from the working class.

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[28] To include gender as covariate, we excluded six participants who had indicated "diverse" for gender and four participants that had not answered this item.

[29] Surprisingly, male participants showed a higher level of conformity compared to female participants, $\beta = 0.15$, $SE = 0.05$, $t = 2.74$, $p = .006$, 95% CI [0.04, 0.26], and participants that did not identify as White/Caucasian showed a higher level of conformity compared to White/Caucasian participants, $\beta = -0.13$, $SE = 0.05$, $t = -2.43$, $p = .016$, 95% CI [-0.24, -0.03].

[30] Again, gender significantly predicted conformity, $\beta = 0.13$, $SE = 0.05$, $t = 244$, $p = .016$, 95% CI [0.03, 0.24] (for ethnicity: $p = .060$).

[31] The differentiation was reflected in the reported SSS, with working-class participants indicating a significantly lower SSS ($M = 5.03$, $SD = 1.88$) compared to middle-class participants ($M = 5.94$, $SD = 1.58$), $t(288) = -4.64$, $p < .001$, $d = -0.53$, 95% CI for d [-0.75, -0.30].

The Role of Self-Construal

Na et al. (2016) argued that people with a lower social class have a more pronounced interdependent self-construal which would mediate their higher tendency to follow a majority in their product choices. Contradicting this pattern, a lower SES was significantly associated with a *lower* (not higher) interdependent self-construal, $r(308) = 0.13$, 95% CI [0.02, 0.24], $p = .021$ in our sample. For SSS, the association with an interdependent self-construal was not significant, $r(310) = 0.03$, 95% CI [-0.08, 0.14], $p = .561$. Regarding an independent self-construal, there was no significant association with SES, $r(308) = 0.09$, 95% CI [-0.02, 0.20], $p = .108$. However, in line with our expectations, a higher SSS was significantly associated with a more independent self-construal, $r(310) = 0.17$, 95% CI [0.06, 0.28], $p = .002$.

Contrary to the assumption that a more interdependent self-construal would lead to a higher responsiveness to social preferences, it did not significantly predict the number of changes in choice in conflicting vs. consistent trials, $\beta = 0.10$, $SE = 0.06$, $t = 1.73$, $p = .085$, 95% CI [-0.01, 0.21] (for separate correlations per trial type, see Table 1). Instead, a more pronounced independent self-construal significantly predicted the conformity score, $\beta = 0.21$, $SE = 0.06$, $t = 3.80$, $p < .001$, 95% CI [0.10, 0.32].

MANUSCRIPT 3: SOCIAL CLASS AND CONFORMITY

Table 1

Descriptive Statistics and Bivariate Correlations among Objective SES, Subjective Social Status, Gender, Ethnicity, Self-Esteem, Self-Construal, Need for Uniqueness, and the Number of Changes in Product Choice After Conflicting and Consistent Feedback (Study 2)

	1	2	3	4	5	6	7	8	9	10	11	12
1. SES												
2. SSS	.62											
3. Gender	.11	.06										
4. Ethnicity	-.04	.03	-.09									
5. Self-Esteem	.29	.31	.00	-.08								
6. Independent Self	.09	.17	.11	-.03	.47							
7. Interdependent Self	.13	.03	.06	.08	-.17	-.10						
8. Need for Uniqueness - G	-.02	.08	.04	-.01	.42	.32	-.44					
9. Need for Uniqueness - C	.06	.04	-.00	-.12	-.08	.08	.21	-.16				
10. Changes Conflicting	.34	.29	.19	-.13	.15	.24	.17	-.10	.00			
11. Changes Consistent	.15	.06	.07	-.02	.09	.10	.16	-.05	.02	.49		
12. Conformity Score	.31	.30	.18	-.14	.12	.21	.10	-.08	-.01	.86	-.03	
M	0.08	5.50	-	-	3.04	4.68	4.20	3.12	3.46	6.10	2.96	3.14
SD	0.86	1.79	-	-	0.66	1.26	1.16	0.76	0.80	5.85	3.03	5.09

Note. $N = 300$-312. SES = Socioeconomic status. SSS = Subjective social status. Gender (0 = female, 1 = male) and ethnicity were dummy-coded (0 = African American/Asian American, Hispanic/Latino and open answers, Native American, 1 = White/Caucasian). Changes Conflicting = Number of changes in product choice in trials with conflicting feedback, i.e., feedback that a minority of others had chosen the same product as oneself. Changes Consistent = Number of changes in product choice in trials with consistent feedback, i.e., feedback that a majority of others had chosen the same product as oneself. Conformity Score = Number of changes in product choice in trials with conflicting feedback minus number of changes in product choice in trials with consistent feedback.

All correlations $\geq .12$ or $\leq -.11$ are statistically significant ($p < .05$).

Self-Esteem and Need for Uniqueness

People with higher social class indicated a higher self-esteem (for SES: $r(308) = 0.29$, 95% CI [0.18, 0.39], $p < .001$, for SSS: $r(310) = 0.31$, 95% CI [0.20, 0.41], $p < .001$). However, surprisingly, a higher self-esteem significantly predicted a *higher* conformity score, $\beta = 0.12$, $SE = 0.06$, $t = 2.11$, $p = .036$, 95% CI [0.01, 0.23]. When controlling for self-esteem, the positive relationship between social class and conformity remained significant (for SES/SSS: $p < .001$).

Need for uniqueness (generally and specifically in the consumer context) was neither significantly associated with social class (for SES: $p > .280$; for SSS: $p > .160$) nor with the conformity score ($p > .160$) (for details, see Table 1).

Discussion

Following closely the experimental procedure of Na et al. (2016) and using data from a diverse U.S. sample, Study 2 did not replicate the finding that people with lower social class show a larger tendency to change their product choice to follow an apparent majority. Contrary to the findings of the original research, American participants with *higher* social class were more likely to conform to social preferences. Additionally, the present research examined the role of chronic interdependent self-construal as mediator of social class effects on conformity. In contrast to the assumed negative relationship between social class and an interdependent self-construal (e.g., Kraus et al., 2012), SES was *positively* related with this type of self-construal. This finding is consistent with recent large-scale cross-national replication studies (A. Batruch, personal communication, December 6, 2023).

Furthermore, although participants demonstrated a general tendency to follow the majority in their product choices, the conformity score showed an unexpected pattern of correlations not only with social class but also with other interindividual difference variables. Specifically, a more pronounced independent self-construal and a higher self-esteem predicted more changes in choice in conflicting trials compared to consistent trials which appears to contradict prior research on the effectiveness of social norms (e.g., Chou et al., 2013; Tainaka et al., 2014). However, as this study was designed to examine the replicability of the original results by Na et al. (2016), the evidence for countervailing effects on conformity is only preliminary and should be interpreted with caution. We further discuss the divergent pattern for social class effects in the U.S. and the German context in the "General Discussion". Nevertheless, the pattern emphasizes that the relationship between social class and conformity is less generalizable than expected based on previous research.

General Discussion

Across three replication studies (two with German samples, one with a U.S. sample), we did not find support for the notion that people of lower social class show a higher level of conformity with a majority in product choices compared to people of higher social class as found by Na et al. (2016). The effect sizes for this association were either small and non-significant (Studies 1a/b) or, interestingly, even pointed significantly in the opposite direction (Study 2), suggesting that people with higher social class showed more conformity. In the following, we interpret the results separately by cultural context.

Studies 1a/b constituted close replications of Na et al.'s (2016) Study 1 in a Western European context. We deviated from the approach by Na et al. mainly in the following aspects: In Study 1a, we collected data from a more diverse sample instead of a student sample, whereas in Study 1b, we manipulated (instead of measured) SSS to be able to investigate its potential causal effect. In both German samples, social class was not significantly associated with conformity in product choices. This result was found for several continuous measures of objective SES as well as for chronic and experimentally manipulated SSS. In line with this result, people with lower class did also not indicate a higher perceived similarity with other participants which was proposed as potential mediator by Na et al. These results are consistent with recent research from the German political context which failed to find class-based differences in the tendency to follow a majority of voters as perceived from poll results in their voting intentions (Unkelbach et al., 2023). Possibly, these results can be explained by structural or cultural differences between the German and the U.S. context. As outlined above, the lower level of individualism (e.g., Hofstede et al., 2010) or the lower level of income inequality in Germany compared to the U.S. might explain why we could not find class-based differences in the level of conformity in Studies 1a/b.

Noteworthy, however, with a U.S. sample we did also not find a negative relationship between social class and conformity with a majority product choice (Study 2). Instead, people with a lower social class (as measured via SES and SSS) showed even less conformity with a perceived majority. However, this finding is preliminary, and further research is needed to replicate and explain this effect. Additionally, the relationship between social class and self-construal which was proposed as mediator in previous research deviated from the expected pattern. People with a lower SES even indicated a less interdependent self while the relationship between SES and an independent self-construal was small and nonsignificant. For SSS, merely a significant positive association with an independent self-construal was found. Overall, the associations of social class indicators and self-construal were weak at best. Taken together with the results from a recent large-scale study which failed to replicate a link between a lower social class and a more interdependent self-construal across the U.S. and Germany (A. Batruch, personal communication, December 6, 2023), our results raise further doubts about the proposed link between social class and self-construal.

To test the robustness of our findings, we conducted some exploratory analyses. As we were not able to use the product pictures from the corresponding original study for the change of choice task, we repeated the analyses with different types of subsets of pictures for Study 1a and Study 2 such as a) only product pairs in which both products were equally attractive in the first choice phase or b) only the first 20 of 60 product pairs in order to eliminate potential effects of fatigue or loss of motivation (see Supplement (4)). In none of these analyses did we find a significant negative relationship between social class and conformity. We also note that we were not able to follow Na et al.'s (2016) approach to investigate the relationship between social class and the number of changes in product choice when controlling for ethnicity in Study 1a/b. However, we do not think that the lack of this additional robustness check limits the interpretability of our results as it is unclear how the role of ethnicity in U.S. samples relates to its role in German samples.

Finally, we need to acknowledge that the possibility remains that factors like the mode of data collection might explain why our pattern of results differs from the one of Na et al.

(2016). While Na et al. conducted their studies as laboratory experiments, we conducted our experiments online. This also made it possible to collect data from samples which were more diverse in terms of SES compared to the original research. However, collecting data online might have, for example, lead to a reduced level of attention in comparison to a laboratory experiment. One way to investigate this potential explanation is to look at the attention checks included after each (manipulated) feedback on social preferences. Even though Na et al. (2016) also included these attention checks to make sure that participants understood the feedback, they did not report their results. Thus, these data cannot be used to qualify the results of our replication studies. In order to ensure a high data quality, we decided to exclude participants who failed a pre-registered number of attention checks. Including all participants regardless of their performance in these checks did not change the pattern of results regarding the relationship between social class and conformity.

Possibly, the different results may be due to differences in the type of products, samples, or the study mode. Still the finding of class-based differences in conformity seems limited in robustness and generalizability. Social influence might be equally strong across the social class spectrum suggesting that, for example, different than expected ads or public campaigns could employ descriptive norms to change individuals' behavior independently of the social class of the target group. Importantly, aside from questioning the robustness of class-based differences in conformity, our findings suggest that the relationship between social class and an interdependent self-construal is less robust as expected. One important avenue for future research on class-based differences in the view on the self may be to first clarify which factors determine if the relationship between social class and self-construal can be found.

Furthermore, follow-up studies that test the generalizability of the link between social class and conformity should be conducted. Specifically, future research should use psychometrically established measures of conformity and different choice contexts to establish the conditions under which a lower social class is related with a higher level of conformity. Even though the manipulation of social preferences developed by Na et al. (2016) was successful in evoking changes in choice, this paradigm has some drawbacks. Firstly, the desire to remain consistent with one's first choice potentially diminished the influence of the social feedback on the tendency to follow a majority choice. This might also explain the relatively low overall number of changes in choice in our studies as well as in the corresponding original study. Secondly, the paradigm only included hypothetical product choices without any real-life consequences. Previous research suggests that a lack of consequences following experimental product choice tasks can indeed affect product preferences (Klein & Hilbig, 2019). In order to arrive at a conclusive picture, it is essential that future research uses further, reliable measures of conformity.

Conclusion

Based on German and U.S. samples, the present research fails to replicate the negative relationship between social class and the tendency to follow a majority when it comes to product choices which was originally found by Na et al. (2016). There was also no empirical support for a negative relationship between social class and an interdependent self-construal which was proposed as underlying mechanism of the original findings. Social psychological

research has only recently begun to recognize the fundamental role of social class in the psychological make up and choice behavior of individuals. However, empirical evidence for class-based differences in conformity and an interdependent self-construal is scarce and faces some methodological shortcomings. The present research adds to recent attempts to assess the generalizability of social class effects and underscores the need to further clarify under which conditions class-based differences in conformity and self-construal can be found.

Competing Interests

The authors declare that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Supplemental Material

Supplemental material to this article can be found on this paper's project page on the OSF: https://osf.io/fmc29/?view_only=34bc5c1f50df4bb9b46c33eb5b81e50d

Data Accessibility Statement

All materials, except for product pictures (which can be shared upon request), R code for all reported analyses, raw data, and codebooks are available on this paper's project page on the OSF: https://osf.io/fmc29/?view_only=34bc5c1f50df4bb9b46c33eb5b81e50d

To obtain access to the product pictures used in the studies, please send an email to the corresponding author.

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